Dissertation Title

Study on Outcome indicators of HMIS data of District Headquarter Hospital Baripada and Balasore

A Dissertation Proposal for

Post Graduate Diploma in Health and Hospital Management

By

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Roll No. PG/11/043

International Institute of Health Management Research

New Delhi

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Dissertation Title

Study on Outcome indicators of HMIS data of District Headquarter Hospital Baripada and Balasore

A dissertation submitted in partial fulfillment of the requirements

For the award of

Post-Graduate Diploma in Health and Hospital Management

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International Institute of Health Management Research

New Delhi -110075

May, 2013

OCTAVO SOLUTIONS PVT. LTD.
The Health & Hospital Consultants

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Certificate of Internship Completion

Dated: 3rd May'13

TO WHOM IT MAY CONCERN

This is to certify that **Dr. Kapil Agrawal (P.T)** has successfully completed his 3 months internship in our organization from **February 01, 2013** to **April 30, 2013**. During this internship period, he has worked on "**Study On Outcome Indicators of HMIS Data of District Headquarter Hospital, Baripeda & Balasore, Orissa**" under the guidance of Mr. Shreekanth Dangi and his team at **Octavo Solutions Pvt. Ltd.**

He has successfully completed his dissertation, proven himself professionally, and his performance has been commendable throughout.

We wish him good luck for his future assignments.

Shreekanth Dangi
3/5/13
Management Consultant

Gauri Madan
Asst. HR Manager

Certificate of Approval

The following dissertation titled "**Study on Outcome Indicators of HMIS data of District Headquarter Hospitals- Baripeda & Balasore** " is hereby approved as a certified study in management carried out and presented in a manner satisfactory to warrant its acceptance as a prerequisite for the award of **Post- Graduate Diploma in Health and Hospital Management** for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein but approve the dissertation only for the purpose it is submitted.

Dissertation Examination Committee for evaluation of dissertation

Name	Signature
DR. BRIJENDER SINGH DHILLON	4/5/13

Certificate from Dissertation Advisory Committee

This is to certify that **Dr. Kapil Agrawal** a graduate student of the **Post-Graduate Diploma in Health and Hospital Management** has worked under our guidance and supervision. She is submitting this dissertation titled **"Study on Outcome Indicators of HMIS data of District Headquarter Hospitals-Baripeda & Balasore"** in partial fulfilment of the requirements for the award of the **Post- Graduate Diploma in Health and Hospital Management**.

This dissertation has the requisite standard and to the best of our knowledge no part of it has been reproduced from any other dissertation, monograph, report or book.

Faculty Mentor	Organizational Advisor
Designation	Designation Management Consultant
IIHMR	Organization Octano Solutions Pvt. Ltd.
New Delhi	Address B-4/167, Basement Safdarjung Enclave New Delhi
Date	Date 24/05/13

FEEDBACK FORM

Name of the Student: Dr Kapil Agrawal (P.T.)

Dissertation Organisation: Octavo Solution Pvt. Ltd. New Delhi

Area of Dissertation: Study on Outcome Indicators of HMIS Data of District Headquater Hospital, Baripeda & Balasore, Orissa

Attendance:
Full - 100% Attendance

Objectives achieved: A comparaative study on outcome indicators where done and area of improvement was estimated.

Deliverables:
Report was submitted on time

Strengths: Keen interest to learn.

Suggestions for Improvement: Read and study more about various studies to improve knowledge about the subject.

Signature of the Officer-in-Charge/ Organisation Mentor (Dissertation)

Shankath.

Date: 5/5/2013

Place: New Delhi

Acknowledgement

The success of any task would be incomplete without the expression of appreciation of gratitude to the people who made it possible .Though words fall short to express the sincere gratitude towards everyone who helped directly or indirectly in my endeavour. It is a pleasant aspect that, I now have the opportunity to express my gratitude for all of them. This is a humble attempt in this regard.

I would like to render my sincere thanks to octavo solutions private IIHMR, New Delhi for providing me with such unique learning experience.

I convey my deep and sincere thanks to Dr.Bidhan Das, Director; Octavo solutions private limited new delhi for firstly giving me the opportunity to do my dissertation.

A special thanks to my Mentor Mr. Shreekant Dangi and all the staff octavo solutions for always being so cooperative and simply trusting me in successfully completing my dissertation. Without their co-operation and warm attitude this project would have been a distant dream.

My chain of my gratitude would definitely be incomplete without thanking IHMR for providing me the opportunity to do my dissertation. I would like to convey my special thanks to Dr. Pawan Taneja my mentor for his valuable guidance in the project.

Dr. Kapil Agrawal (PT)

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List of Acronyms:

IPD- In patient Department

OPD- Out patient Department

DHH- District Headquarter Hospital

MMR- maternal Mortality Rate

NNMR- Neonatal Mortality Rate

OSPL- Octavo Solution Pvt. Ltd.

NHSRC- National Health System Resource Centre

QCI- Quality council of India

NABH- National Accreditation Board for Hospitals and Healthcare Providers

NABET- National Accreditation Board for Education and Training

BCC- Behaviour Change Communication

IEC- Information Education Communication

WHO- World Health Organization

IPHS- Indian Public Health Standerds

PHC- Primary Healthcare Centre

CHC- Community Healthcare Centre

HMIS- Hospital Management Information System

ART- Anti Retroviral Therapy

ENT- Ear, Nose, Throat

ISO- International Organization for Standardisation

ALOS- Average Length of Stay

BOR- Bed Occupancy Rate
MTP- Medical Termination of Pregnency

LSCS- Lower Segment caesarean Section

CPR- Cardio Pulmonary Resuscitation
BLS- Basic Life Support

LAMA- Leave Against Medical Advice

BMW- Bio Medical Waste Management

OT: Operation Theatre

ASHA: Accredited social health activist

Part I – Internship

1.1 Introduction:-

I did my internship from Octavo solution pvt. Ltd., New Delhi for the period of three months from February 1 to April 30, 2010. I am working here as a Management Trainee. As a part of my job I was placed in Odisha. National Health System Resources Centre (NHSRC) has started a Quality improvement programme for district hospitals in Odisha. I was placed to observe the progress of this programme at District Headquarter hospitals of Baripada & Balasore. Here I gone through a study on outputs, based on HMIS indicators to major the performance of DHH- Baripada & Balasore.

The objective of the internship at Octavo Solutions Pvt. Ltd. was to gather an exhaustive knowledge about the Dimensions of a Healthcare Consulting Organization and apply the insights so gained to succeed in the same industry. The Dimensions of a Healthcare Consulting Organization are Planning, System Development and Operation, Quality Healthcare Certification, Public Private Partnership, Capacity Building, Information and Technology, Knowledge Management and Public and Rural Health. Main objective of the internship was to understand the working of my Organization on Quality Management System and Quality Assurance Program.

1.1(a) Organization Profile

Octavo Solutions Pvt. Ltd. (OSPL) a multidisciplinary Health & Hospital Management Consulting firm, established and managed by health management experts, supported in its initiatives and efforts by experienced and reputed experts in field (like Architecture, Engineering, Public Health, Bio-medical Engineering, Clinical Experts, National and International Quality Gurus, Project Management experts), who have successfully undertaken health, hospital and other infrastructure projects ranging from small nursing homes to large medical college hospitals, including public health. We are associated with a number of reputed consulting organizations and thus can draw upon qualitative and latest expertise as and when required. With our ongoing in-house research and quality improvement efforts, we always strive to be up-to-date and able to provide the client qualitative, cost effective and comprehensive solutions. Our experts have worked with QCI, JCI and Australian Council of Health Standard International (ACHSI) and donor-funded projects like, the World Bank and the distinguished clients served includes the Ministry of Health, Govt. of India; State Governments, Private clients, Corporate House & Charitable Hospitals.

Octavo Solutions Pvt. Ltd. is the first Consulting firm registered with Quality Council of India (National Accreditation Board for Education and Training) for providing consulting services in field of Healthcare.

Vision:-

To focus on continuous development of processes for understanding the needs & expectations of the clients; leading to continual improvement and achievement of real client satisfaction. To redesign (existing) and develop (new) quality healthcare institutions and hospital with competitive process designs/models matching national and international standards.

Mission:-

To become the leader in healthcare consultancy in India by providing value for money; by providing value for money; effective, efficient solutions and hands on support.

Octavo Solutions Pvt. Ltd. is the first Consulting firm registered with Quality Council of India (National Accreditation Board for Education and Training) for providing consulting services in field of Healthcare (NC07 01)	NABET

Value:-

Client Delight	Sincere
Competent	Disciplined
Honest	Teamwork
Truthful	Focused
Ethical	Integrity

SERVICES

1. Public & Rural Health

We take up advisory/ consulting role on boards of NGO/ Government/ PSU/ Corporate for planning, implementing or monitoring of their projects in the fields of

- Epidemiology

- Bio Statistics
- Vital Statistics & Surveillance
- Environmental Health
- Health Services Administration
- Training & Education of Public health force
- Health Communication
- Maternal & Child Health

2. Project & Strategic Planning

- Business Case Writing
- Facility Plan Draft, Architect Briefs
- Equipment Planning
- Equipment Procurement
- Turn Key Project
- Vision Documents
- Resources Plan Draft

3. Development of Standards

- Development of standards for Quality, Safety, Infrastructure, Aesthetics

4. Capacity Building

- Manpower (Resource) Allocation & Planning
- Recruitment Contracts
- Continuous Education & Training

5. Developing BCC and IEC Strategies

- Preparing BCC and IEC Strategies
- Developing Posters/ Leaflets
- Facilitate events like swasthya mela, community awareness workshops, Folk play

6. Financial Model & studies

- Economic models
- Economic studies

7. Operations & Systems Development

- Managed Operations Contract
- Systems & Policy Development
- Cross Sectional Studies/ Audits
- Process Flow & Mapping
- Change Management
- Facilities Management
- Supply Chain Management

8. Public Private Partnerships

We partner with Delloitte Teusche/ Feedback Ventures/ Abacus Legal Group for taking up transaction advisors role in providing consulting services to Government for PPP projects

9. Knowledge Management

We collect, collate, analyze, store and share latest know how's within domain of healthcare sector

1.1(b) Key Strengths and Salient Features of OSPL

The primary **strength** of our company is to partner the client organization to optimize resources & implement the improvement strategies successfully. An assignment begins with an accurate assessment of people, processes, performance and strategies. Our consultants define competitive strengths, threats and opportunities to define performance gaps and growth potential. To assure successful implementation and competitive advantage, we develop an execution action plan with essential controls for the management system under consideration, (PERT Chart). Unique Bottom-Up consulting **approach** of our consultants ensures success of our consulting assignments. This approach ensures that plans are accepted & practiced at all the levels of management. We have an unmatched 100% success rate for all the projects taken up so far in our journey.

Key Strengths:-

- A **Private Limited Company** (Reg. No. U72400DL2007PTC159745)
- Short listed firm with **NHSRC** (National Health Systems Resource Centre) under aegis of Ministry of Health & Family Welfare (Government of India)
- **Talented Leadership** from leading institutes like
- All India Institute of Medical Sciences (Delhi),
- School of Planning and Architecture (Delhi),
- Tata Institute of Social Sciences, (Mumbai)
- Indian Institute of Health Management and Research (Jaipur)
- Symbiosis Institute of Health Sciences (Pune)
- Jamia Hamdard University (Delhi)
- Great Team with all essential skills
- Dr. Bidhan Das- Member, Technical Committee of NABH for drafting standards
- Dr T. Venkatesh- Member, Technical Committee of NABL for drafting standards
- Dr Bidhan Das has Standards for Primary Healthcare (NABH) to his credit which is on its (likely) first test in State of Gujarat
- Dr. Bidhan Das- First ACHS International Surveyor (Australian Council for Health Standards) in India
- OSPL is **SE-Asia Partners for ACHSI**
- OSPL has presence in **14 states (**including Union Territories)
- We have working offices at **7** different locations across India.

- OSPL has one overseas **(International)** project to its credit.
- In short span of just 4 years, OSPL has rendered its **consulting services to over 30,000 beds** within the healthcare sector
- We have provided consulting services to over 100 Hospitals (bed range 30-1500), 7 Teaching Hospital & Medical Colleges, 1 Rehabilitation Hospital, 2 Dental Hospital & Colleges, 2 AYUSH Hospitals.
- Combined Years of Experience of our Technical Personnel is 68 Man-Years in ISO/ NABL/ NABH/ QMS and Hospital Planning assignments. Our Key Personnel have rich experience of having conducted over 720 Audits/ Assessments and provided consulting services to 497 client organizations for establishing QMS.
- Our mission is "To become the Leader in Healthcare Consulting in India by providing value for money, effective, efficient solutions and hands on support".
- We are one stop solution company for healthcare sector.

1.2 Lesson learned and difficulties faced:-

Lesion learned

- This internship period also taught me the importance of regular monitoring and supportive supervision. This ensures meticulous timely reporting of work progress and motivates the staff to work efficiently and effectively.
- Constant interactions with hospital staff and to provide training to them have improved my confidence level and Communication skills.
- I learnt how important the training programs for the field staff are. Regular training programs keeps the grass root level workers updated on the current program developments and this in turn would lead to a responsive society
- I had an opportunity to learn skills of event management, time management and scheduling.
- I learnt how important is the proper documentation of the work done and progress made in implementation of the schemes. This helps us find the gap areas and make targeted interventions.

Difficulties faced

- It was also challenging to convince and motivate hospital staff especially grade IV to work.

- I faced difficulty in monitoring each and every process of a hospital to find gaps in it.
- It was difficult to interact with hospital staff and collect the data due to workload of staff.
- I found it bit difficult to find access to OT complex because of its busy schedule.
- I faced problems due to Language Barrier with their local language.

Part II- Dissertation

Study on Outcome indicators of HMIS data of District Headquarter Hospital Baripada and Balasore

2.1 Executive Summary:-

This project has been initiated by State Health Society Orissa, National Health System Resources Centre (NHSRC) and Octavo solutions Pvt. Ltd. to improve the Quality of Public Health services in the state of Orissa.

Ministry of Health and Family Welfare, Government of India in its bid to bring about a paradigm shift in healthcare delivery system across the country had undertaken initiative for quality improvement in the Public Health Systems with the active technical assistance of National Health Systems Resource Centre (NHSRC), a technical support wing of Ministry of Health & Family Welfare, Govt. of India. Though, NHSRC realizes the significance of increasing availability of health services, it is also aware that availability does not directly improve its utilization. It needs concerted efforts to bring about improvement in the quality and comprehensiveness of services through improvement initiatives for service delivery processes. With this understanding, NHSRC had started a project to enhance the service quality level at the District hospitals. It is time now to look at how evaluation of the hospital and subsequent improvement, go hand in hand leading to better access and quality service to all service seekers with focus on erstwhile deprived section of the society.

To facilitate the above goals, comprehensive study of District Head Quarter Hospital- Balasore and Baripada was carried out on the current processes, practices and existing infrastructure with other available resources to identify the major gaps based on **ISO 9001: 2008 Quality Management System** and **Indian Public Health Standards** as applicable to District Head Quarter hospital-Balasore and Baripada.

Volume and performance indicators are taken according to IPHS's MIS sheet. Major Volume and Performance Indicators were selected from this MIS sheet which is mainly related to RCH Indicators and for Overall Functioning of District Headquarter Hospitals.

A real time Survey is done of DHH- Baripada and DHH- Balasore. Observations and Personal interview were used for root cause analysis of identified gaps based on volume and performance indicators.

Root cause Analysis is done by a real time survey of these facilities. Observations and personal interviews were the main method for this root cause analysis. Root cause analysis is done to get true root causes of process problems of DHH- Baripada & Balasore.

Major Findings like High **BOR**, High **MMR**, High **NNMR**, High **Death Rate,** Less no. of **Surgeries** Performed**,** Less no. of **X-rays** and **USGs** done and High **LAMA Rate** were identified from this HMIS data analysis.

2.2 Introduction of the study:-

Health Management Information Systems (HMIS)' is a tool which helps in gathering, segregating, analyzing and using information for taking actions to improve performance of health systems.

The Mandate of HMIS: To ensure that there is a continuous flow of good quality disaggregated data on health of populations and health care services to assist in local planning, programme implementation, management, monitoring and evaluation.

An indicator is a data element placed in a given context so that it becomes information that can be used for program monitoring, management, and action. Indicators help us assess our performance/progress across time and across places. Indicators also serve as a yardstick for comparison with external sources.

Steps to convert data element into indicator:

- Identify a data element as the numerator
- Divide it by another data element which represents the context- the denominator
- Multiply it by a factor to make it easily readable

The study is to explain how health care delivery system works at a level of district headquarter hospitals in the state of Odisha. The District Headquarter Hospital provides services with a view to render out-patient, in-patient, emergency, laboratory and imaging services to the people. The in-patient services are internal medicine, general surgery, obstetric and gynaecology and specialist clinical services.

Given the backdrop, this study examines the nature and quality of health care delivery in district hospitals of Odisha. It discusses volume and performance indicators of the hospitals. This Performance Framework applies to the Baripada and Balasore District Hospitals in Odisha. The intention is to obtain a critical analysis of the sector's performance during the period in terms of service delivery.

In order to assist health care organisations in the measurement and evaluation of their performance the **OSPL** has put together a list of volume and performance indicators. These standards are based upon **IPHS Guidelines for district hospitals**.

These indicators are meant to be suggestions only. Not all of the indicators will be suitable for all types of organisations. Organisations may wish to modify the suggested indicators to meet their own needs. OSPL has included indicators that may be useful to a range of health services.

It is also important to for organisations to:

• use indicators that exist, not replicating work that has already been undertaken

• use indicators that motivate for improvement in health service delivery

• use indicators that make sense at various levels of health service delivery.

Volume indicators are proxy, or indirect, measures of quality. They are based on evidence suggesting that hospitals performing more of certain intensive, high-technology, or highly complex procedures may have better outcomes for those procedures. Volume indicators simply represent counts of admissions in which these procedures were performed.

A performance indicator is “a statistic or other unit of information which reflects, directly or indirectly, the performance of a health or welfare intervention, facility, service or system in maintaining or increasing the well being of its target population”. (Armstrong, 1994)

Performance indicators are most fundamentally evaluative criteria. However, performance monitoring is only a part of evaluation. Performance indicators are one source which informs an evaluation process and may help to identify or flag further issues or questions.

2.3 Demographic, socio-economic and health profile of Orissa:-

Orissa is located on the eastern coast of India with Andhra Pradesh in the south and west, Chhattisgarh on the west and north and Bihar and West Bengal in the north. The Bay of Bengal washes the eastern coast of Orissa. The State has a rich cultural and natural wealth with beautifully built temples, colourful handicrafts, intricately hand-woven fabrics, and breathtaking tourist spots. The State has been home to political and religious events of historical importance and is closely linked with the cultural history of the Country. Geographically, the State is usually divided into three regions: Coastal plains, middle mountains and plateaus, and rolling uplands. Orissa covers an area of 155,707 sq. km and has a population of 36,706,920 (census, 2001) and ranks 7th in population and 9th in area in the Country. There are 30 districts and 51,349 villages in the state.

	INDICATOR	**Odisha (Census,2011)**	**India (Census,2011)**
1	Total population	4.19 Cr	121 Cr
2	Actual Population	41,947,358	1,210,193,422
3	Male Population	21,201,678	623,724,248
4	Female Population	20,745,680	586,469,174
5	Population density (persons per sq. km)	269	382
6	Decadal Growth (%)	13.97%	17.64 %
7	Birth Rate (births/1000 population)	20.5	20.97
8	Death Rate (death/1000 population)	8.6	7.5
9	Total Fertility Rate	2.40%	2.6%
10	Couple Protection Rate (%)	47%	40.4%
11	Infant Mortality Rate (deaths /1000live births)	61	47.57
12	Maternal Mortality Ratio	277	212
13	Sex Ratio	978	914
14	Life Expectancy at Birth (2011-15 Project)	Male-64.3, Female-67.3	Male-67.3, Female- 69.6
15	Female Literacy Rate (%)	64.36 %	65.46 %
16	Male Literacy Rate (%)	82.40%	82.14 %

2.4 Overview of DHH-Balasore and at DHH-Baripada

2.4(a) DHH- Balasore

Balasore as a district of Orissa is having population coverage of 22, 86,461. District Headquarter Hospital Balasore caters to the large mass living in state urban and rural people in the District. District hospital system in Balasore addresses issues related to performance of primary and secondary level care. The hospital is situated in prime location of Balasore which is accessible easily from all adjacent areas of Balasore City, 2 km away from railway station and bus station. The hospital covers 70(4 old and 66 new) PHCs, 8 CHCs and 275 sub-centres. This hospital mostly covers 22, 86, 461 population. The number of functional beds available in the hospital is 205. The hospital compound is spacious and in good condition. Less pollution, noise free and greenery all across the hospital premises is an added advantage for patient friendly environment. By looking at the fact sheet of DHH-Balasore we know that the average monthly OPD attendance is 10,480, average emergency attendance is 3410, average IPD is 3838, average delivery per month is more than 700, average caesarean deliveries per month is 137, average attendance of dog bite cases are 192, more than 2500 child immunization and 250 mother immunization per month.

2.4(b) DHH- Baripada

The Mayurbhanj district lies between 210 17’ and 220 34’ north latitude and 850 40’ and 870 10’ east longitude. It is bounded on the north by the Singhbhum district of Jharkhand and Midnapur district of West Bengal, on the south by the districts Balasore and Keonjhar, on the east by Midnapur and Balasore districts and on the west by Keonjhar and Singhbhum districts. According to the Surveyor General of India, the district has an area of 10,418 sq. km. and as per 2001 Census it has a population of 2,223,456. In order of size and population, the district ranks first and sixteenth position respectively in the state. Baripada is a city and a municipality in Mayurbhanj district in the state of Orissa, India. Baripada is the district headquarters. As of 2001 India census, Baripada had a population of 94,947. Males constitute 53% of the population and females 47%. Baripada has an average literacy rate of 77%, higher than the national average of 59.5%; with 87% of the males and 65% of females literate. 11% of the population is under 6 years of age.

District Headquarter Hospital, Baripada is highest point of referral in the district. This hospital covers 4 sub divisional hospitals, 16 CHCs, 88 PHCs. The number of functional beds available in the hospital is 275. The hospital is situated in the centre of town and easily accessible to all population of district and town.

2.5 Services Available at DHH-Balasore and at DHH-Baripada

1. Emergency Care
2. Outpatient Care
3. Inpatient care
4. Orthopaedics
5. Paediatrics
6. Neonatal care
7. General Surgery
8. Dermatology
9. ENT
10. General Medicine
11. Psychiatrics
12. Ophthalmology
13. Pharmacy/ Drug dispensary
14. Sexually Transmitted diseases
15. Obstetrics and Gynaecology
16. Physiotherapy
17. Prosthetics Implantation
18. Infectious patient care
19. Antenatal and Post natal care
20. Immunization services
21. Blood bank
22. ART centre
23. ICTC/ PPTCT

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To facilitate the above goals, comprehensive study of District Head Quarter Hospital- Balasore and Baripada was carried out on the current processes, practices and existing infrastructure with other available resources to identify the major gaps based on **ISO 9001: 2008 Quality Management System** and **Indian Public Health Standards** as applicable to District Head Quarter hospital-Balasore and Baripada.

2.6 Objectives of the study:-

2.6(a) General Objective:

To Analyse HMIS Data of DHH- Baripada & Balasore and study the Outcomes of Indicators to recommend an integral model for delivery of quality health care services.

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2.6(b) Specific Objectives:

- To identify and to analyze the main volume and performance Indicators.
- To understand the existing level of health care delivery system by reviewing the outputs of Identified indicators.

- To find out the Root Causes based on Real time survey of District Headquarter Hospital Baripada and Balasore.
- To recommend an integral model for delivery of quality health services.

2.7 Review of the literature:-

2.7(a) Margaret Elizabeth Kruka, b, Lynn P. Freedman b

With the setting of ambitious international health goals and an influx of additional development assistance for health, there is growing interest in assessing the performance of health care delivery system. Indicators of assessment were organized into three categories: effectiveness, equity, and efficiency. Measures of health system effectiveness were improvement in health status, access to and quality of care and, increasingly, patient satisfaction. Measures of equity included access and quality of care for disadvantaged groups together with fair financing, risk protection and accountability. Measures of efficiency were appropriate levels of funding, the cost-effectiveness of interventions, and effective administration.

Measuring health system performance is complicated by ongoing debates in the policy community about the purpose of health systems, the degree of impact of health care (versus other determinants) on health, and the nature of health care itself (public good versus market good). Still, most commentators agree that a well-performing health system is effective, equitable, and efficient.

2.7(b) DR. ASHWIN G. MODI*, DR. BHUPINDER CHAUDHARY**

The Govt. of India has realized the importance of Health and in the development of the country. The main aim is to improve the basic structure and delivery of Healthcare services through the improvement in significant health Indicators. Also, basic amenities like safe drinking water, nutrition, hygienic conditions have directly been linked with good health. The ultimate goal is to improve the accessibility, availability and affordability of Healthcare services in this country. These goals were

•Reduction in Infant Mortality Rate (IMR) and Maternal Mortality Ratio (MMR)

• Universal access to public health services such as Women's health, child health, water, sanitation & hygiene, immunization, and Nutrition.

• Prevention and control of communicable and non communicable diseases, including locally endemic diseases

• Access to integrated comprehensive primary healthcare

• Population stabilization, gender and demographic balance.
• Promotion of healthy life styles.

Apart from the obvious advantages on the organizational level, the usage of performance indicators may give rise to a number of managerial issues. Hospitals are confronted with a rapidly growing number of externally imposed sets of data to be gathered, leading to increasing registration activities and costs, with the impact on patient outcomes being to a considerable extent unknown. A major issue is therefore the harmonization of the sets of national hospital performance indicators with other, externally imposed initiatives to assess and monitor the quality of healthcare. Strategic choices are therefore needed, to balance on the one side the efforts needed to comply with externally defined performance indicators and on the other side their potential benefits on the organizational level. These strategic choices pertain to:
A. the linking with the internal quality management system of the hospital;
B. the role of performance indicators in the hospital's competitive position; and
C. the infrastructure needed for the registration, analysis and internal and external reporting of information related to performance indicators.

Health care quality is "the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge". An often used method to describe the attributes of quality of health care includes its structure, processes and its outcomes. The structures are the innate characteristics of providers and the system, whereas the processes pertain to what health care providers do in delivering care, and the outcomes to what happens to patients, particularly with respect to their health.

Currently, various strategies to improve quality of health care are applied, involving four levels in health care: 1). individual health care providers; 2). health care processes; 3). health organizations; and 4). health care systems.

On the level of individual health care providers, strategies to improve quality include systems for continuing medical education, accreditation and certification, and the development and implementation of evidence-based guidelines and practice recommendations.
Health care delivery is in many cases far more complex than the execution of one or more activities by a single professional. More commonly, multiple health care providers, supporting staff and extensive technical equipment, sometimes at various locations, are involved. For this reason, health care delivery is

more and more seen as a collection of operations, with quality systems being developed for health care delivery processes. These methods involve a commitment to identify opportunities for improvement and to test alternative processes in small pilot cycles of change, called plan-do-study-act (PDSA) cycles.

On the organizational level, a specific quality level for all health care delivery processes being carried out within that organization is required. Therefore, overarching quality management systems have been adopted in e.g. hospitals, mental health organization, nursing homes and primary care centres on a large scale over the past decades. These quality systems usually concern methods for total quality management (TQM)/continuous quality improvement (CQI), and are derived from business and industry, based on the pioneering work of Deming. They are mainly focussed on the consistency with which providers follow processes that have been shown to improve outcomes.

Quality of health care is however no longer left exclusively to the responsibility of individual health care providers and organizations themselves. In addition to internal quality and safety management systems, external monitoring and regulation of health care performance and public reporting on the health care system level are implemented on a large scale.

This development is prompted for various reasons, including:

a. The slow pace of improvement of quality of health care.

b. The demand for accountability for the way in which collective resources are spent in the health care system, with on the other hand the need to ensure that quality is not adversely affected when health care utilization and costs are increasingly constrained.

c. The increasing technical and logistic complexity of health care delivery.

d. Health care insurers' needs on information for purchasing health services and for the provision of rewards or penalties for health care providers concerning quality, efficiency and innovation (financial or non-financial incentives). With respect to the latter, in many countries provider reimbursement has been (re)organized, in such a way that the provision of incentives is now permitted. Examples of incentive models for health services include bonuses, allowing health care providers to keep the surplus or parts of the savings from efficiency, grants to promote and share best practices and performance funds, payment for services that improve performance and public recognition.

e. The growing societal anxiety about the variation in quality of health care (including equity in access to high quality care)—an anxiety that may further heighten as the results of more measurements reveal even more problems.

f. Consumers' growing assertiveness and independence, with increasing needs to have access to standardized information to allow direct comparisons among health care providers with the aim to facilitate health care decision making.

The increasing role of the media in reporting on health care quality, in particular the publishing of existing of self-developed rankings in newspapers, magazines and on websites.

A performance indicator is not a synonym for quality, but rather a proxy. As the term indicator suggests, performance indicators give a signal, and thus suggest a direction for research and actions by health care providers and policy makers. For consumers, it suggests a direction for making choices on health care providers. However, in many cases considerable analysis, interpretation, and further investigation are required in order to understand properly what is happening, why, and what can be done to improve or sustain performance.

The following key stakeholders are usually involved in the development and usage of performance indicators: providers, consumers, health funders, governments and accreditation organizations / government agencies.

Future research in this area should focus on understanding how these various indicators can be applied to different research and policy questions and to validating the indicators themselves. For instance, it would be important to elaborate a subset of indicators that can best capture short term effects of changes in policy or funding without being overly burdensome to apply. Linking specific process indicators to difficult to- measure but crucial impact indicators, such as a reduction in maternal mortality or fair financing, is another area for further research. Lastly, there are relatively few indicators to capture the performance of health systems as a social institution. Operational zing such notions as trust, accountability, and health worker motivation and, conversely, people's experience of exclusion and abuse will be required to document this role of health systems.

2.8 Research methodology:-

2.8 (a) Study Design: -

Descriptive study

2.8 (b) Study Area: -

DHH- Baripada and Balasore

2.8 (c) Data Collection Method:

Both secondary and primary data collection was carried out to assess the current system and potential improvement spots.

Secondary data:-

Secondary data was collected through survey in these hospitals. These hospitals are using IPHS checklist for their HMIS system. Extensive analysis of HMIS data is done. Based on this data, identification of gaps is done according to volume and performance indicators.

Primary data:-

A real time Survey is done of DHH- Baripada and DHH- Balasore. Observations and Personal interview were used for root cause analysis of identified gaps based on volume and performance indicators.

2.9 Identification of Volume and performance indicators

Volume and performance indicators are taken according to IPHS's MIS sheet. Major Volume and Performance Indicators were selected from this MIS sheet which is mainly related to RCH Indicators and for Overall Functioning of District Headquarter Hospitals.

Volume Indicators which are mainly related to overall functioning of District Headquarter Hospital are as follows:

Total OPD Count	Total IPD count
No. of Normal Deliveries	No. of C- section Deliveries
No. of Maternal Deaths	No. of Neonatal Deaths
No. of Major surgeries Performed	No. of Minor surgeries Performed
No. of Laboratory tests done	No. of X-ray & USG performed
Total no. of Deaths	

Performance indicators are as follows**:**

Bed Occupancy Rate

LSCS Rate

Average Length of Stay

LAMA Rate

2.10 Data Analysis

2.10(a) Analysis of Volume Indicators:

Volume Indicators of Balasore-2012

Volume	Indicators	Jan-12	Feb-12	Mar-12	Apr-12	May-12	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12
OPD	**Total OPD**	8760	8472	8972	12779	16578	13368	15132	14142	14328	16183	15538	16182
IPD	**Total IPD**	3930	3971	4106	4534	4444	4429	4392	4678	4362	4802	4235	4515
Delivery	**Normal**	827	793	822	889	847	602	772	871	842	873	865	823
	C-Section	169	152	209	211	214	197	232	212	332	232	218	256
	Neonatal Death	25	23	19	17	14	12	16	17	3	2	5	6
	MTP Conducted	1	1	3	7	2	3	6	4	3	2	3	4
	Maternal Death	3	2	3	0	6	3	0	2	1	0	2	3
Operation theater	**No. Of Major Surgeries**	318	297	288	365	365	312	389	231	302	370	345	368
	No. Of Minor Surgeries	24	21	31	33	35	37	20	39	42	45	34	48
Laboratory	**No. of Lab. Test Done**	8976	9876	8765	12356	15676	15456	17654	13467	14656	16787	12333	16989
Radiology	**No. of X-ray**	467	451	392	379	501	363	324	412	398	521	467	512
	No. of USG	86	79	89	104	93	104	98	123	94	132	123	112
No. of	**Deaths**	86	82	81	89	74	123	95	98	102	111	99	105

Volume Indicators of Baripada-2012

Volume	Indicators	Jan-12	Feb-12	Mar-12	Apr-12	May-12	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12
OPD	**Total OPD**	11961	13199	13525	13176	13467	12980	15426	18369	17051	15172	12095	12267
IPD	**Total IPD**	3747	3916	4315	4444	4471	4176	4476	5025	4672	4306	3587	4176
Delivery	**Normal**	757	497	780	606	694	591	549	565	593	566	519	549
	C-Section	217	199	207	199	227	190	191	171	149	160	159	162
	Neonatal Death	19	20	19	16	14	18	16	21	13	6	5	6
	MTP Conducted	5	12	10	7	6	4	6	3	5	7	3	4
	Maternal Death	3	1	3	2	7	8	2	0	3	2	4	3
Operation theater	**No. Of Major Surgeries**	239	247	272	235	264	203	211	208	169	189	179	222
	No. Of Minor Surgeries	66	53	58	46	86	33	29	39	40	34	35	39
Laboratory	**No. of Lab. Test Done**	15296	12711	13558	12112	13669	13229	15996	19578	16058	14451	11234	13234
Radiology	**No. of X-ray**	650	1014	680	871	807	881	943	873	822	837	812	765
	No. of USG	250	76	366	368	493	323	481	391	291	306	278	312
No. of	**Deaths**	127	139	142	124	179	234	179	168	164	144	164	138

2.10(b) Graphical presentation of volumetric indicators

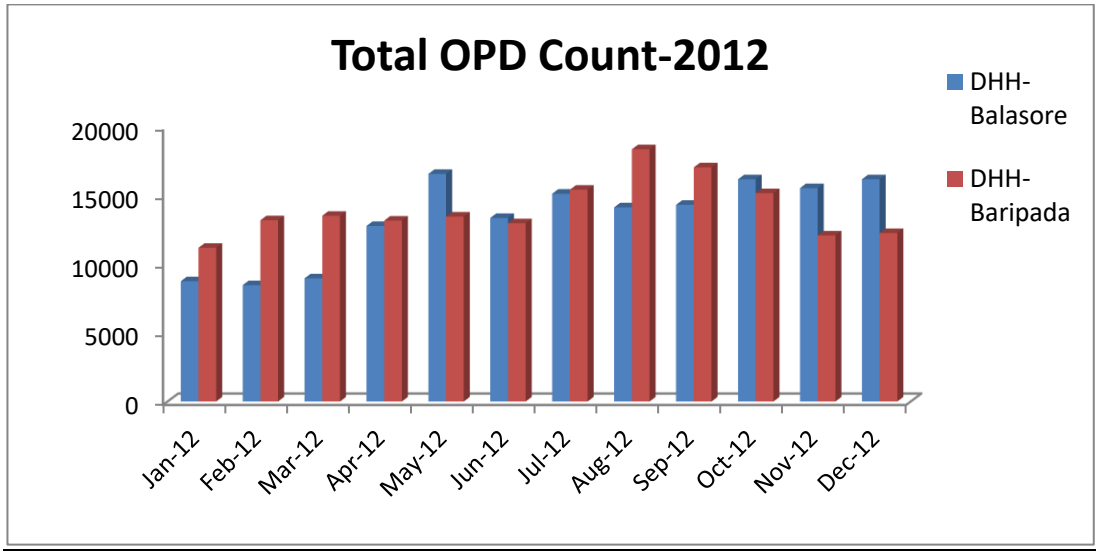

Figure 1: Total OPD Count of DHH- Baripada & Balasore

Above picture shows that patient flow is comparativerly less in January, February, November and December. Patient flow gradually increases and reaches at peak in Aug and again starts declining. This is mainly due to

- November- February is time of winter and incedences of communicable diseases are less, so patient flow in OPD is less during this period.
- Incidences of Communicable diseases are more in summer and monsoon and hence, patient flow is more.

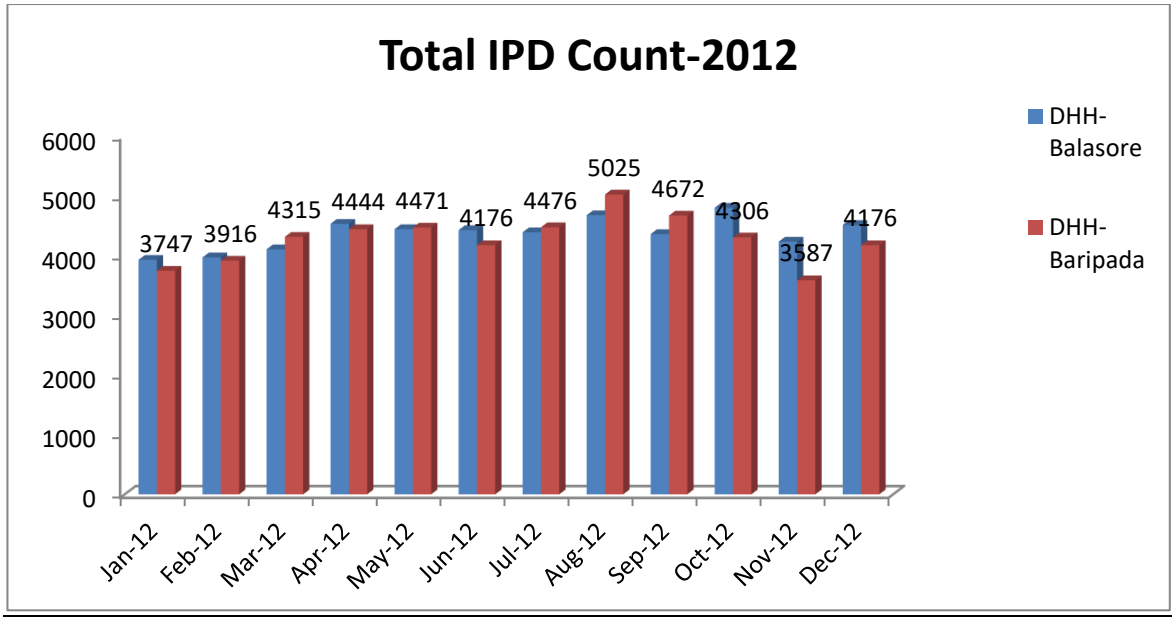

Figure 2: Total IPD Count of DHH- Baripada & Balasore

Above picture shows the total number of IPD patients in the DHH- Baripada & Balasore. Average monthly IPD is 4282.

- Patient flow is more during June –August. This is a time for monsoon in Odisha and hence communicable diseases are more.

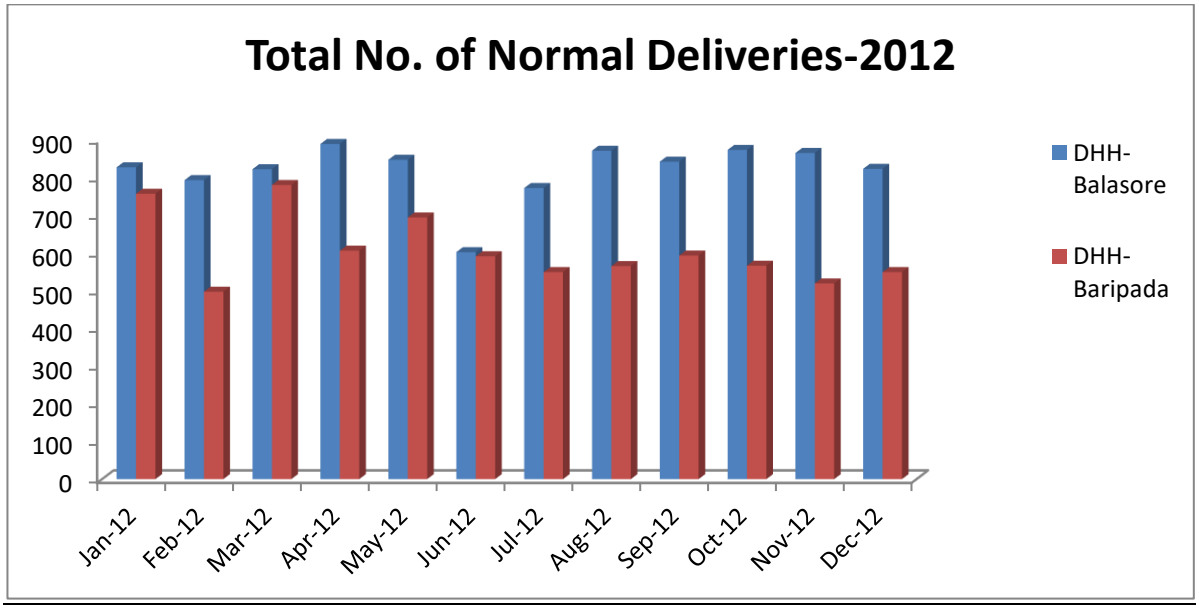

Figure 3: Total No. of Normal Deliveries in DHH- Baripada & Balasore

Above Picture Shows that No. of Normal deliveries are more in DHH- Balasore in comparison to Baripada. This is mainly due to fewer efforts from DHH for IEC for the same.

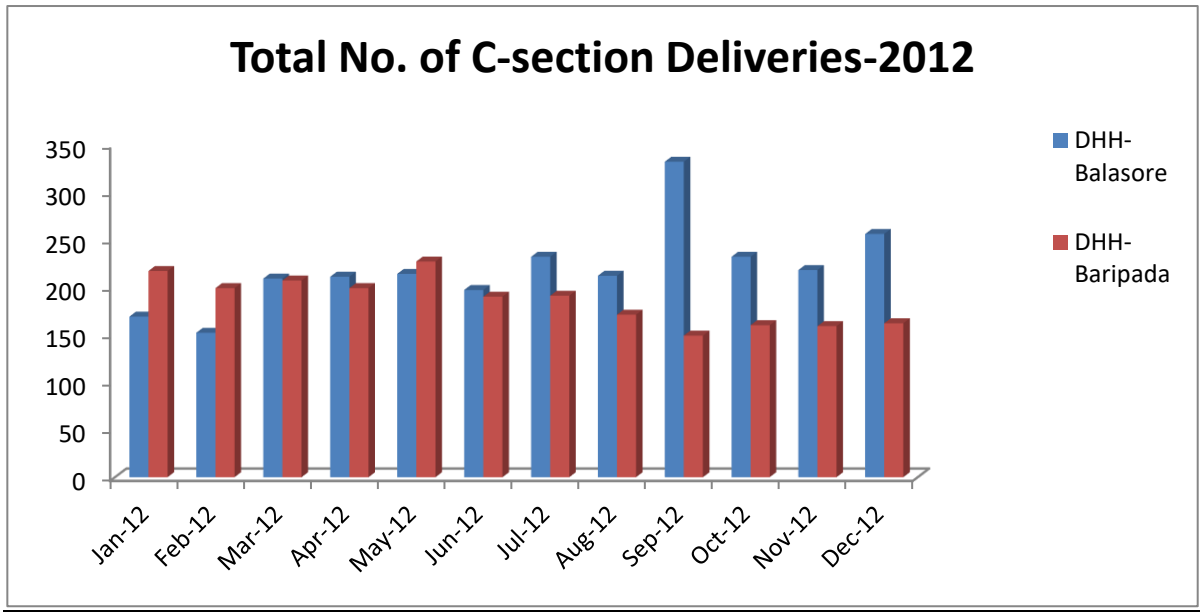

Figure 4: Total No. of C-section Deliveries in DHH- Baripada & Balasore

Fig. 4 shows that average no. of C-section deliveries performed 247 in a month. This is 21.09% of total deliveries performed in DHH- Baripada & Balasore which is little bit higher than normal value 15-20%.

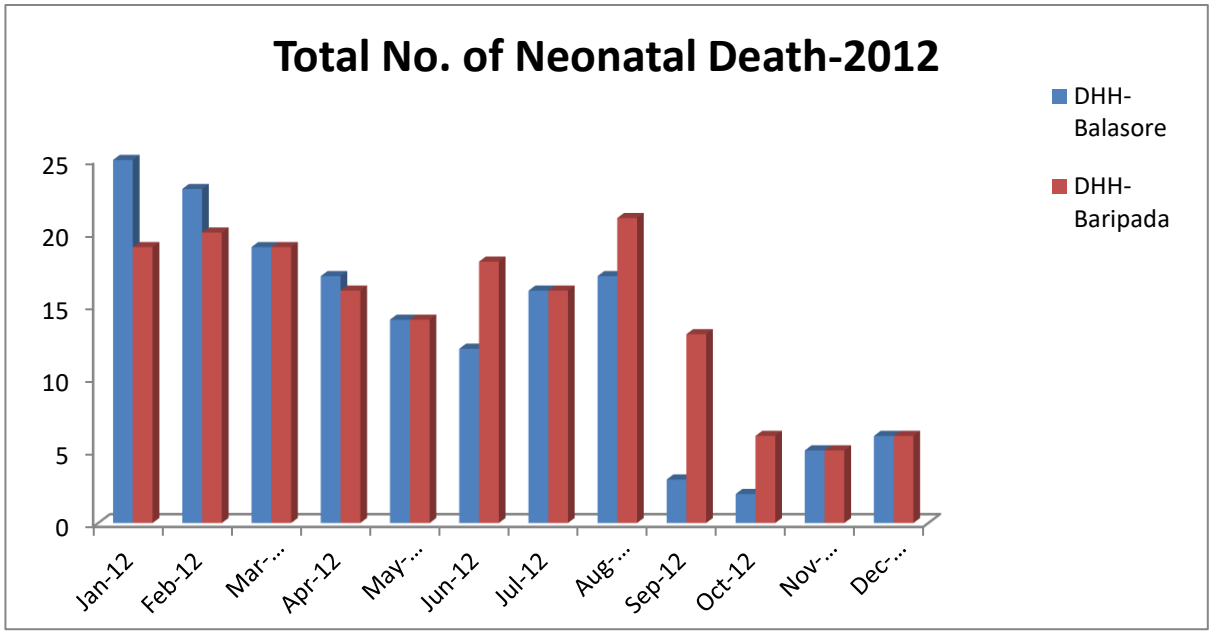

Figure 5: Total No. of Neonatal Death in DHH- Baripada & Balasore

The main causes for neonatal death are:

- **Birth Asphyxia:** Staff are not efficient and trained in management of Neonatal Resuscitation and other basic life support techniques.
- **Sepsis:** Knowledge of standard precautions and Infection Control Practices is not there, amongst clinical staff.

- **Low Birth Weight:** Councelling services and ANC are not efficent to promote Nutritional habits, pre natal care.

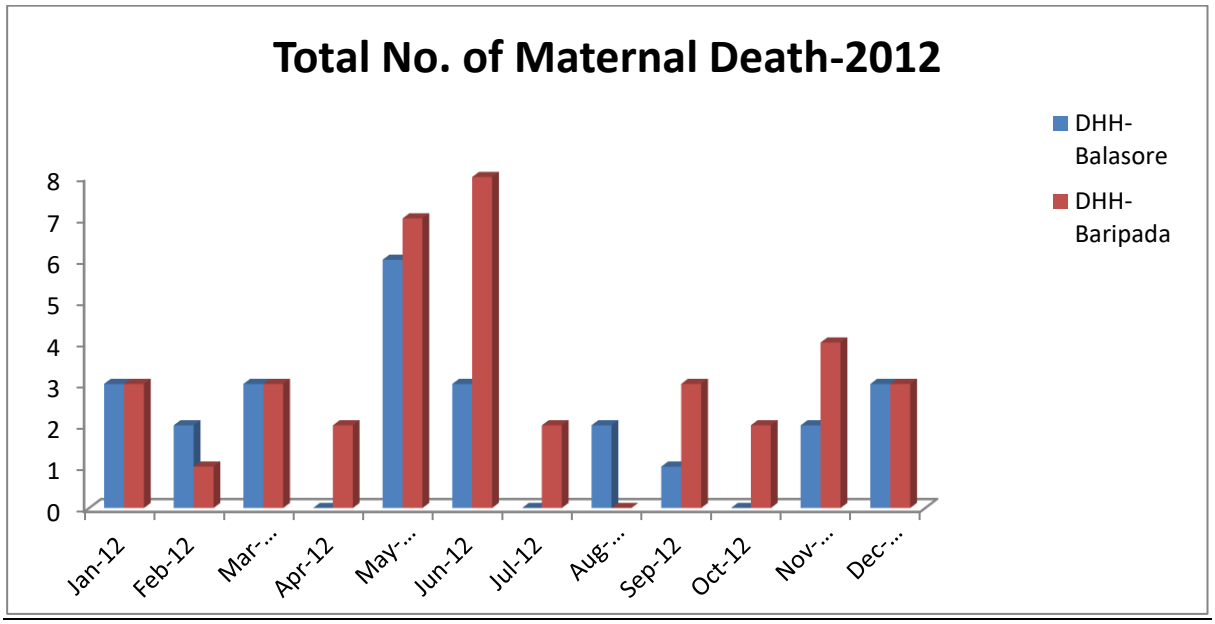

Figure 6: Total No. of Maternal death in DHH- Baripada & Balasore

Average maternal deaths are 2/ month. MMR per 100,000 live births is 289. This is higher than National and State's average. The main reasons are:

- Post Partum Heamorrhage
- Sepsis
- Aneamia

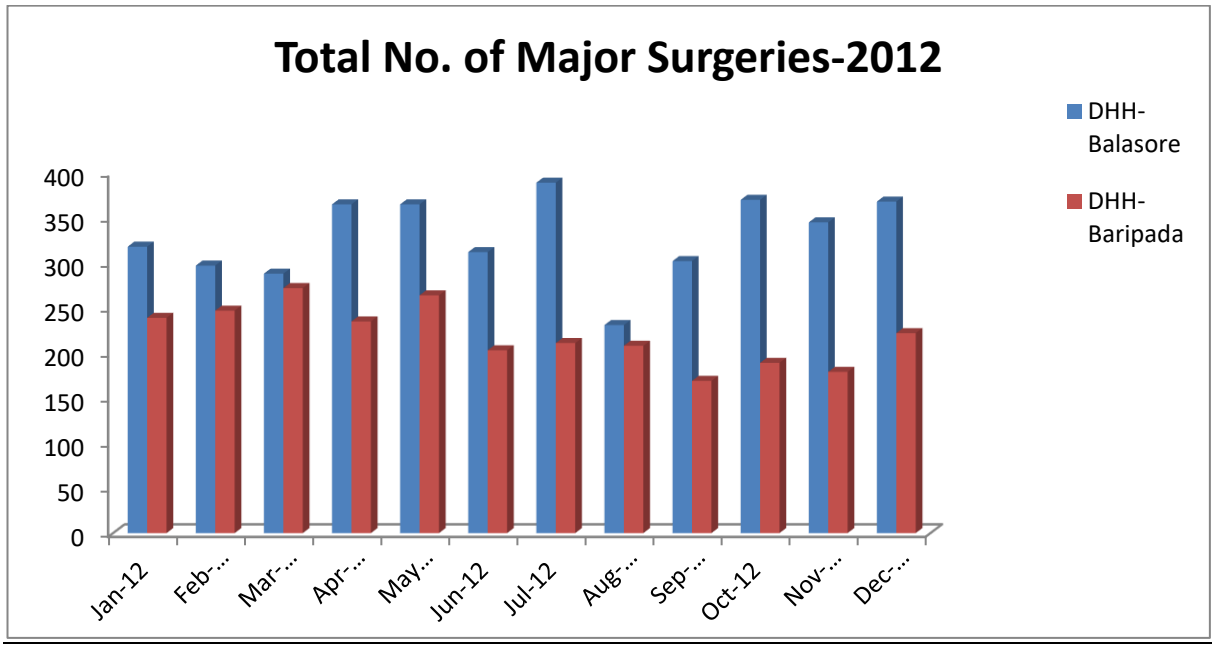

Figure 7: Total No. of Major Surgeries Done In DHH- Baripada & Balasore

No. of Surgeries performed in a month is a very less amount compare to OPD & IPD patient load of DHH- Baripada & Balasore. This is mainly due to shortage of staff and shortage in Min. equipments requirement in district hospitals.

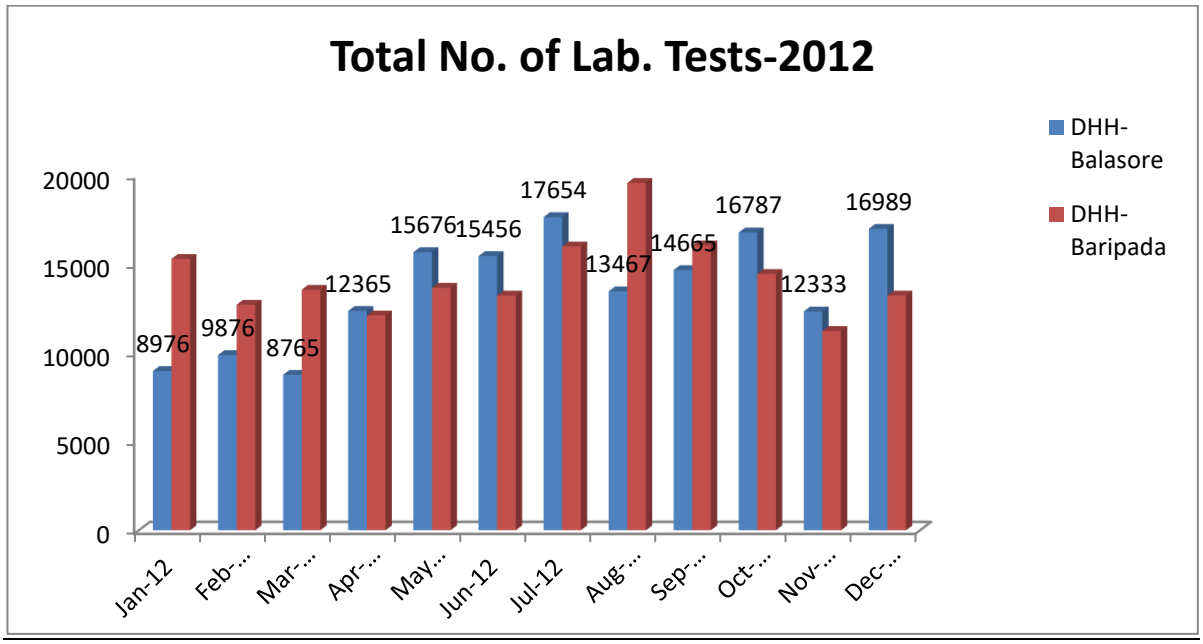

Figure 8: Total No. of Lab. Tests done in DHH- Baripada & Balasore

Fig 8: shows Laboratory investigations carried at DHH Baripada & Balasore. On average daily 500 investigations are carried out while there are daily 400 OPD and 300 IPD patients. So, invstigations carried out inside the hospital are not sufficient to cater patient load. Majority of investigations are done at outside of hospital. These icreases out of pocket expeinditure on Patients. Main reasons is:

- Doctors do not have faith on efficacy of diagnostics method of Governement Laboratories.
- Staff are not skilled for safety techniques, labelling, standard precautions.

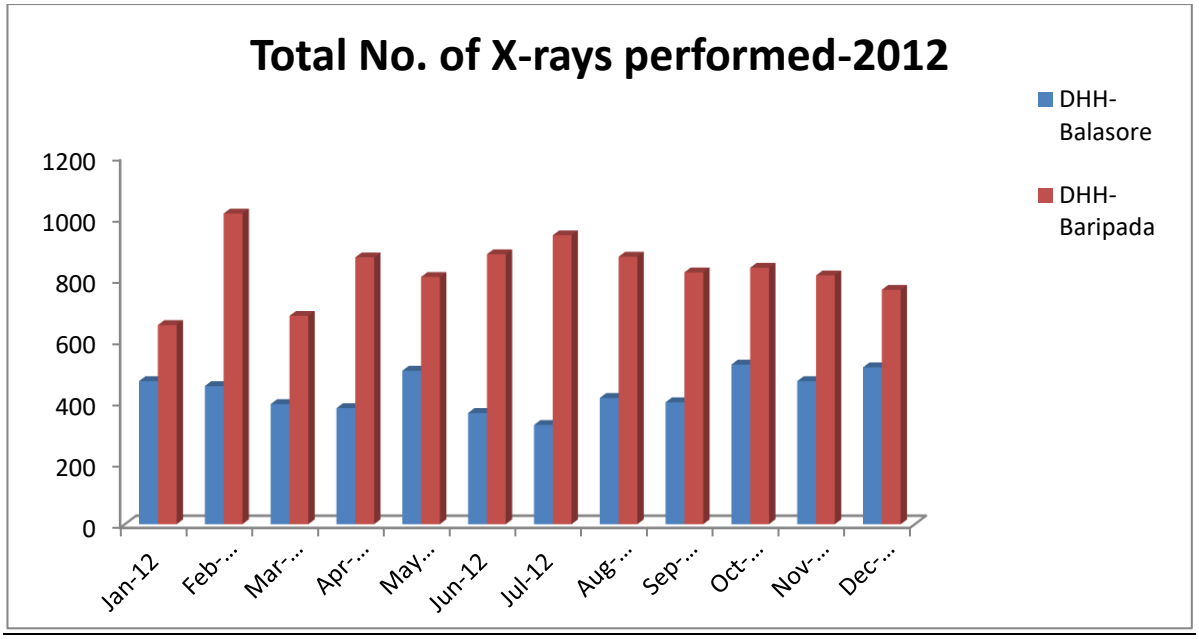

Figure 9: Total No. Of X-rays performed in DHH- Baripada & Balasore

Fig.9: shows Radiology investigations carried at DHH Baripada. On average daily only 19 X-rays investigations are carried out while there are daily 400 Oudoor and 300 Inpatient patients. Here Investigations carried out are less because:

- More time is taken for reporting than other private service providers
- Staffs are not motivated to increase their efficiency

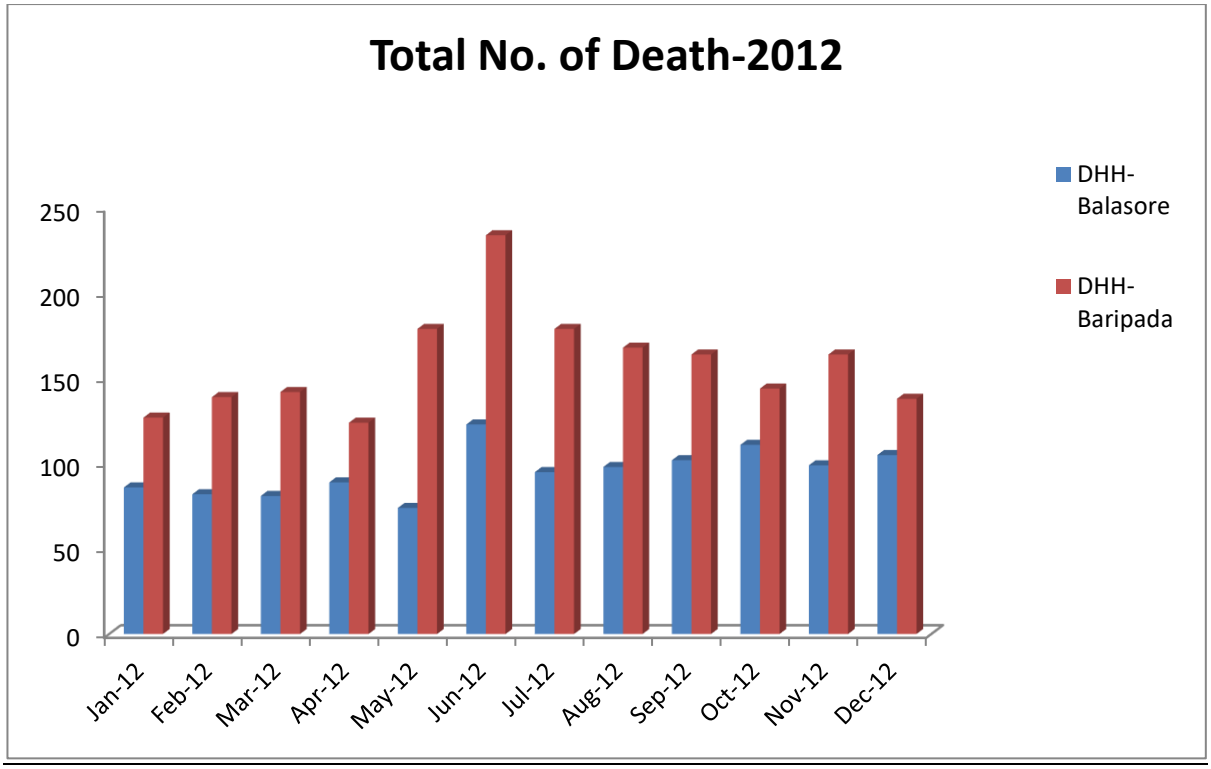

Figure 10: Total No of Deaths Occur in DHH- Baripada & Balasore

. Death rate is nearly 5% of Total IPD admissions. The main reasons for higher death are:

- Clinical staffs are not aware of CPR and Basic Life Support Protocols
- Handy Emergency Trays including emergency medicines, AMBU bags, Airways are not available

2.10(C) Analysis of Performance Indicators:

Performance Indicators of Balasore:

Performance Indicators	Jan-12	Feb-12	Mar-12	Apr-12	May-12	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12
Bed Occupancy Rate(BOR)	110.47	117.94	85.52	90.84	79.81	79.60	81.73	79.88	80.43	92.08	85.16	113.84
Average Length of Stay(ALOS) in Days	2.72	2.83	2.35	3.51	1.89	1.87	2.96	3.16	2.56	2.81	2.62	3.62
LAMA Rate(per 100 Admissions)	17.43	18.28	19.22	20.28	17.89	16.42	18.40	21.56	15.50	13.29	14.28	20.82
LSCS Rate	16.97	16.08	20.27	19.18	20.17	24.66	23.11	19.58	28.28	21.00	20.13	23.73

Performance Indicators of Baripada :

Performance Indicators	Jan-12	Feb-12	Mar-12	Apr-12	May-12	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12
Bed Occupancy Rate(BOR)	140.13	139.57	156.85	137.46	162.19	147.77	139.75	165.28	166.71	146.23	121.94	113.84
Average Length of Stay(ALOS) in Days	3.93	3.74	3.93	3.78	3.96	3.90	3.49	3.80	3.87	3.58	3.76	3.62
LAMA Rate(per 100 Admissions)	17.81	18.85	19.71	16.90	19.12	20.31	25.02	18.11	20.27	18.18	17.60	20.82
LSCS Rate	22.28	28.59	20.97	24.72	24.65	24.33	25.81	23.23	20.08	22.04	23.45	23.73

2.10(d) Graphical Presentation of Performance Indicators

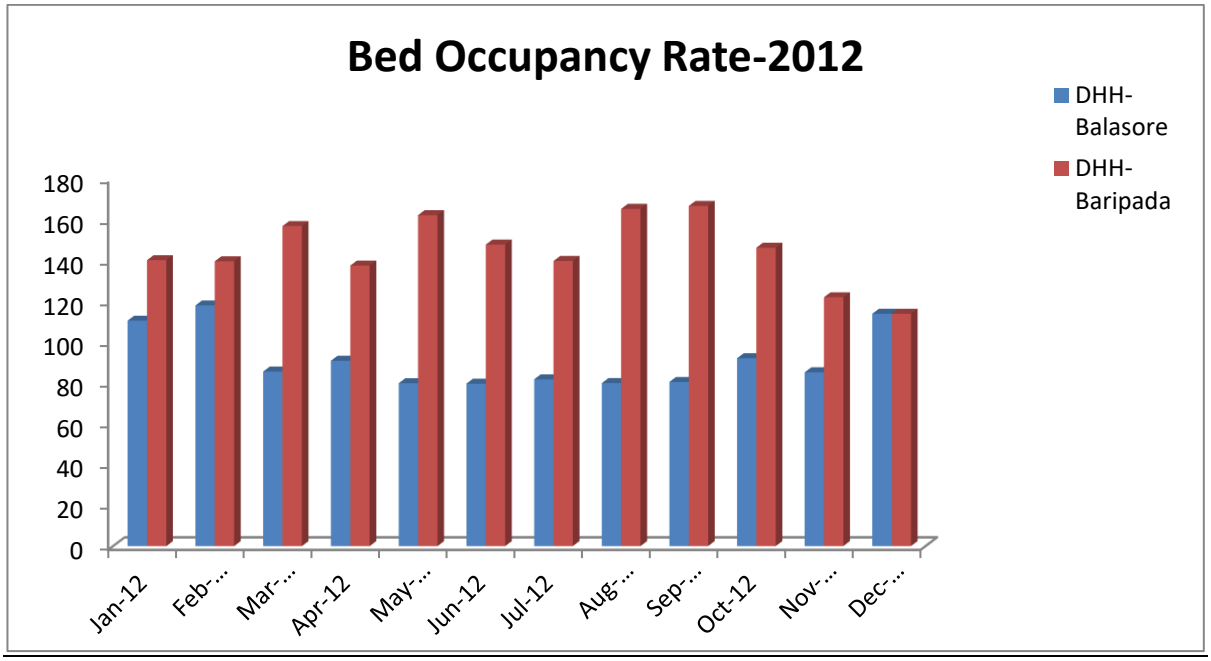

Figure 11: Bed Occupancy Rate of Balasore & Baripada

Fig 11 Shows bed occupancy rate of Balasore and Baripada. Baripada average BOR is 140%. Patients are seen lying on IPD floors. There is nonavilabilty of beds are seen most of the time.

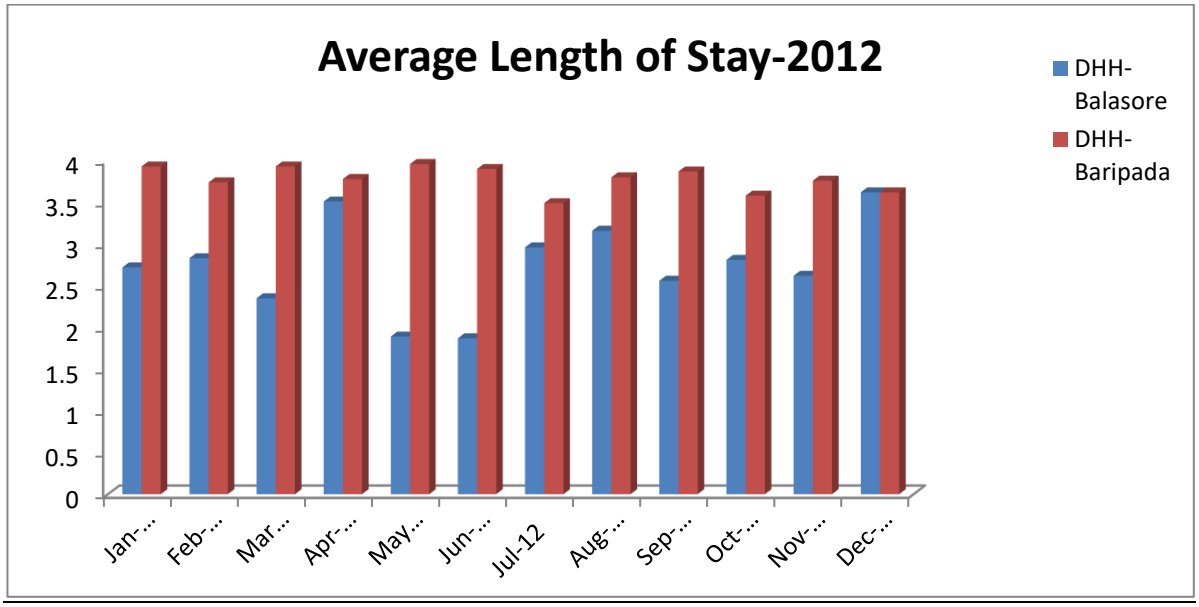

Figure 12: ALOS of DHH- Balasore & Baripada

Fig 12 shows ALOS of patients. ALOS is high because Discharge time taken by Doctors is very high.

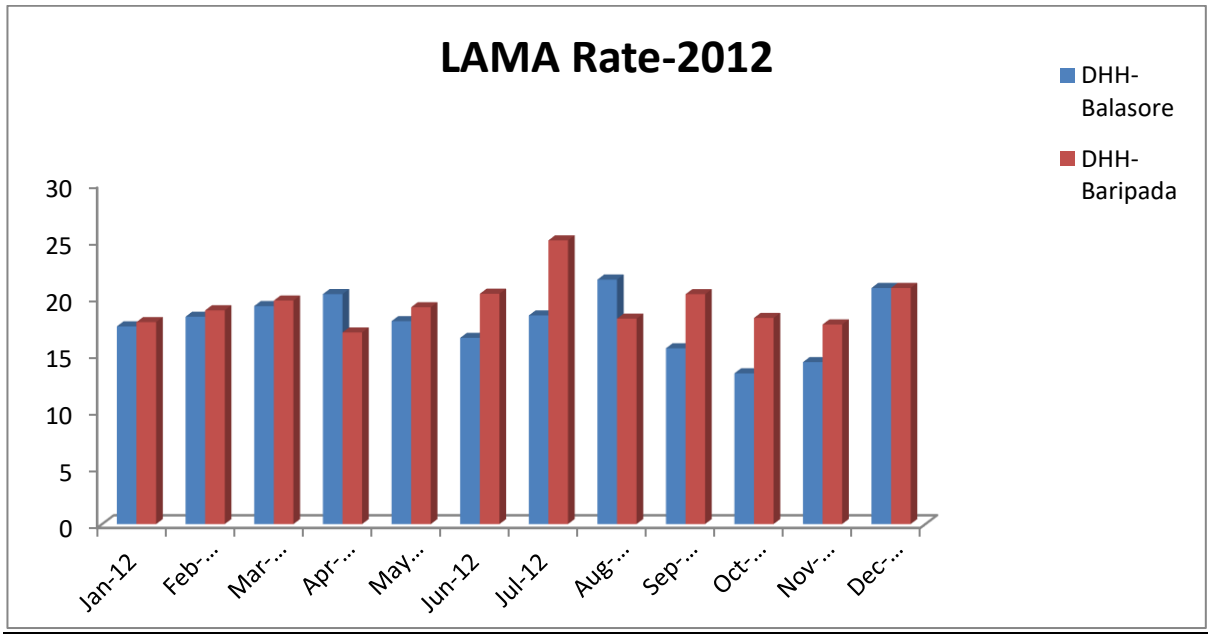

Figure 13: LAMA rate of DHH- Baripada & Balasore

LAMA rate of DHH- Baripada & Balasore is seen high. This is because of unsatisfied people with government facilities. Communication gap is also seen majorly in b/w doctors & Patients.

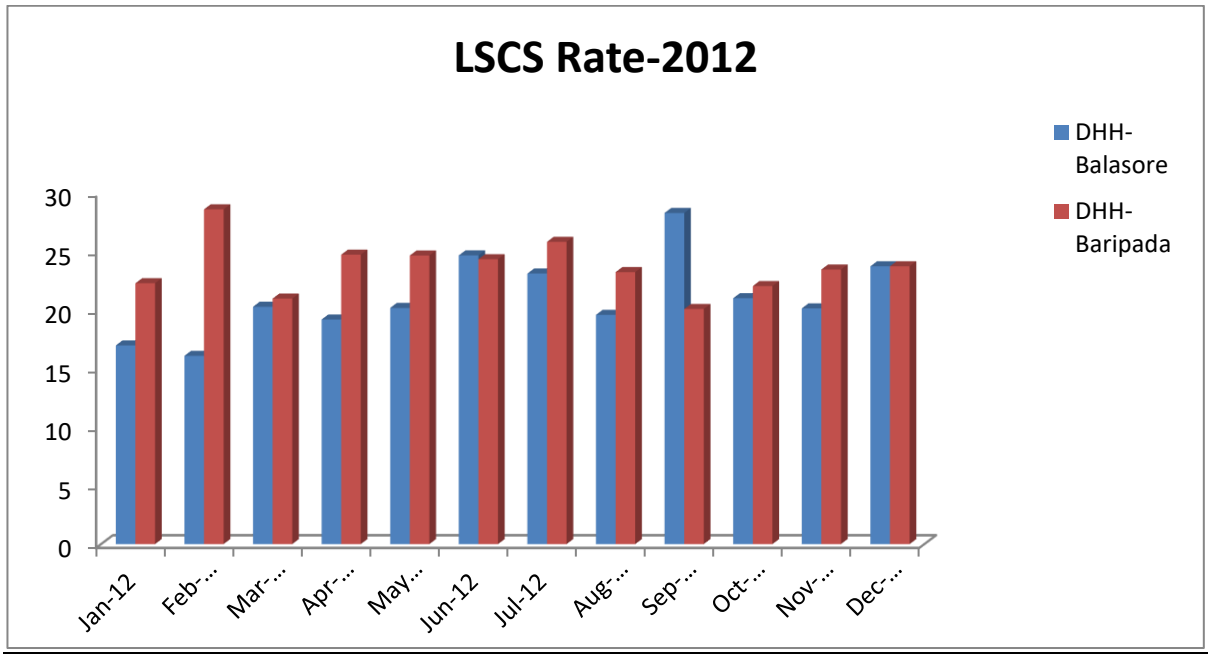

Figure 14: LSCS Rate of DHH- Baripada & Balasore

1.3 2.11 Major Findings of Data Analysis:

- **Bed Occupancy rate** of DHH- Baripada & DHH- Balasore is very High. Patients are seen lying on floor of IPD due to this high BOR. Patients satisfaction level goes down with nonavilabilty of beds and because of this high LAMA rate is found in public hospitals. Out of pocket expenses of poor patients are increases due to lack of bed availability.
- **Death Rate** of DHH- Baripada & Balasore is very high which is 37 per 1000 IPD admissions. Death rate of Odisha is 8.6 per 1000 population. This is seen very high compare to state profile.
- **Maternal Mortality Ratio** per 1,00,000 live births at DHH Baripada & Balasore for given time is **289**. The health scenario in Odisha calls for an urgent need for action.MMR measures number of women aged 15-49years dying due to maternal causes per 1,00,000 live births. Odisha's maternal mortality ratio is 277 compared to 212 for India. Developed countries have maternal mortality ratios of about 20 per 1,00,000 live births. Maternal mortality is largely preventable and is thus a priority area to be focussed on. Maternal Mortality of these DHH is very high as compare to state profile also.
- The **Neo-natal Mortality Rate (NNMR)** is defined as "Number of infant deaths of less than 29 days per thousand live births during the year. The neo-natal mortality rate in India is amongst highest in the world and skewed towards Rural India. The NNMR of DHH- Baripada & Balasore is very high compare to India. NNMR of Baripada & Balasore is 40 which is a high no. compare to India's NNMR 32 per 1000 live births.
- **LSCS rate** of DHH-Baripada is Average 21.09% in a month which is near to a normal range 15-20%. Practice of Partograph uses is not seen in DHH- Baripada & Balasore. Infection control practices are not as much as required. Early discharge of mother is seen due to less awareness about postpartum complications.
- No. of **Surgeries perform** in a day is 7 surgeries only, which is a very less no in respect to OPD patient fall and IPD patient fall. Rescheduling of Operation is seen majority of time. Patients have less faith on government facilities; out of pocket expenditure is increasing due to involvement of cost from private practicenors.
- Average no of **X-rays & USG** done in a day is only 16 and 11, which is very less as compare to OPD and IPD patient fall in a day.
- No. of **Laboratory tests** done is a very less no. with relation to OPD patient fall and IPD patient fall. Majority no of patients goes to private laboratories for investigations. Doctors have less faith

on reports of government hospitals laboratories. Cost involvement in investigations increases the out of pocket expenditure of patient.

- **LAMA rate** of DHH- Baripada and Balasore is very high as compare to discharge per day.
- The knowledge and practices about **BMW management** are rudimentary and needs repeated training and monitoring. Maintenance of Colour coded bins are not evidenced as bins were not routinely used and if used not cleaned and disinfected.
- Bio medical waste management practices and **infection control practices** are nonexistent and staffs are not trained in these.

1.4 2.12 Photographic Evidences

2.12(a) OPD

Photograph 1: OPD block of DHH- Balasore & Baripada

This picture shows condition of Outpatient Department at DHH- Balasore & Baripada. Here, following points are identified:

- There is no queue management
- No curtain/ screen to ensure patient privacy
- Three Medical officers are sitting in one OPD

2.12(b) IPD

Photograph 2: IPD block of DHH- Balasore & Baripada

The above photographs explain condition of Inpatient department.

- Bed Sheets, pillows are not provided to patients
- While transporting patient IV stand is given to the patient's relative.

IPD remains overcrowded because:

- There is no visitors' policy inside the hospital.
- On average there are 3-4 visitors with one patient

2.12(c) Operation Theatre


Photograph 3: Operation Theatre of DHH- Balasore & Baripada

This picture shows condition of Operation theatre. The main points identified are

- Macintosh is blood stained
- Colored liners are not available for BMW bins
- Washing machine, fan, etc. are kept inside the OT
- There is no proper inventory management system in the OT.
- Infection Control Protocols are not taken care of

2.12(d) Bio-Medical Waste Management

Photograph 4: Bio medical Waste Management of DHH- Balasore & Baripada

Condition of Biomedical waste management is explained through pictures given above:

- These pictures shows that the bins are not empted when they are ¾ full hence it is overflowing
- Segregation of waste is not done as per standards
- Disposal site is not protected
- Animals are not prevented from entering to the BMW disposal site
- BMW pickers are not stopped from entering the hospitals
- There is higher risk of reuse of BMW
- This increases risk of infection transmission to community

2.12(e) Labor Room

Photograph 5: Labor room of DHH- Balasore & Baripada

Following findings can be laid down from the picture shown above:

- Provision of waiting room is not there though enough space is available
- Patients are not attended by Hospital staff
- Standard precautions like BMW management, cleanliness etc. are not followed in labour room
- Labour tables are without mattresses
- Emergency drug trays, delivery kits are not available
- Separate rooms for Eclampsia, Septic delivery are not available

2.12(f) Medical Record Department

Photograph 6: Medical Record Department of DHH- Balasore & Baripada

Condition of store is explained in above picture.

- Stock is not arranged in racks
- Verification of quality, quantity, expiry cannot be made
- Staff is not aware of inventory control methods
- Storage timelines are not available and are not followed
- There are no protocols followed for maintenance and safety of medical records

2.13 Root Cause Analysis

Root cause Analysis is done by a real time survey of these facilities. Observations and personal interviews were the main method for this root cause analysis. Root cause analysis is done to get true root causes of process problems of DHH- Baripada & Balasore.

Main problems of poor performance were identified with the analysis of HMIS data sheet of district hospitals. Based on these problems root causes analysis is done to know why these problems are occurring.

Major Findings like High **BOR**, High **MMR**, High **NNMR**, High **Death Rate,** Less no. of **Surgeries** Performed**,** Less no. of **X-rays** and **USGs** done and High **LAMA Rate** were identified from this HMIS data analysis.

Fish Bone Diagram used for depicting the root cause analysis of poor performance of DHH- Baripada & Balasore. Further root cause analysis of High MMR, High NNMR, High BOR and High Death Rate is also done through Fish Bone diagram.

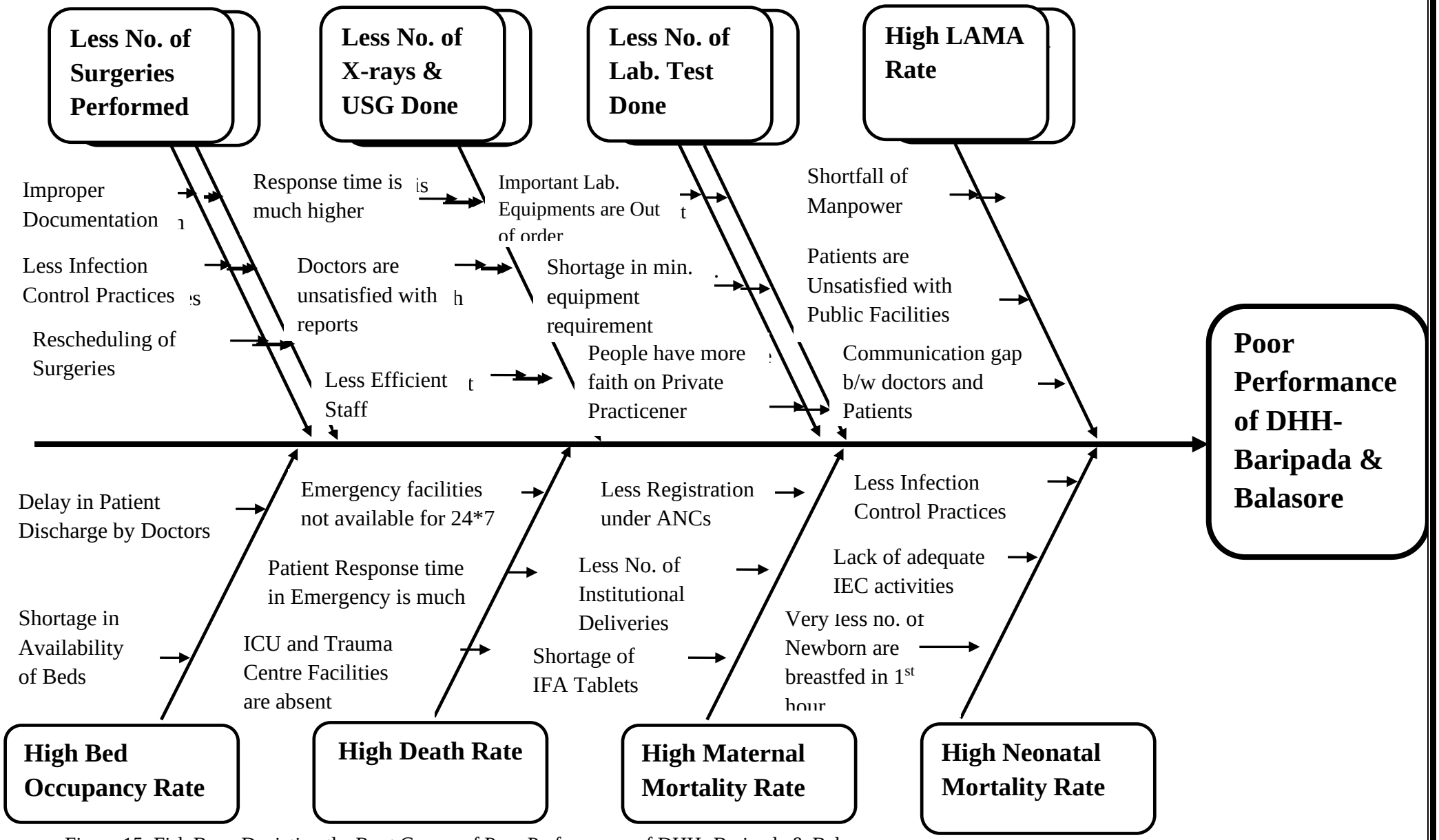

Figure 15: Fish Bone Depicting the Root Causes of Poor Performance of DHH- Baripada & Balasore

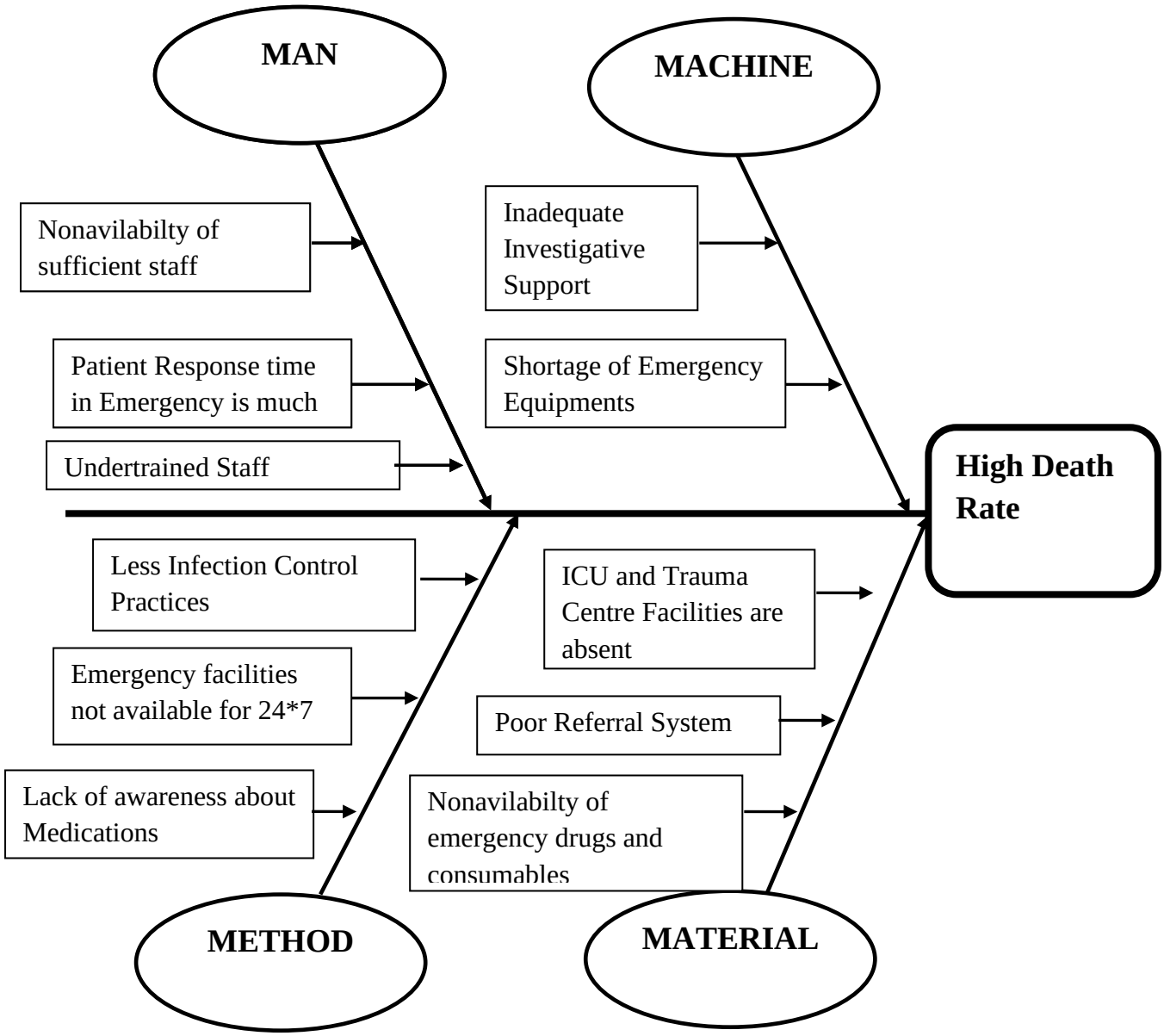

Figure 16: Fish Bone depicting Root Causes of High Death Rate in DHH- Baripada & Balasore

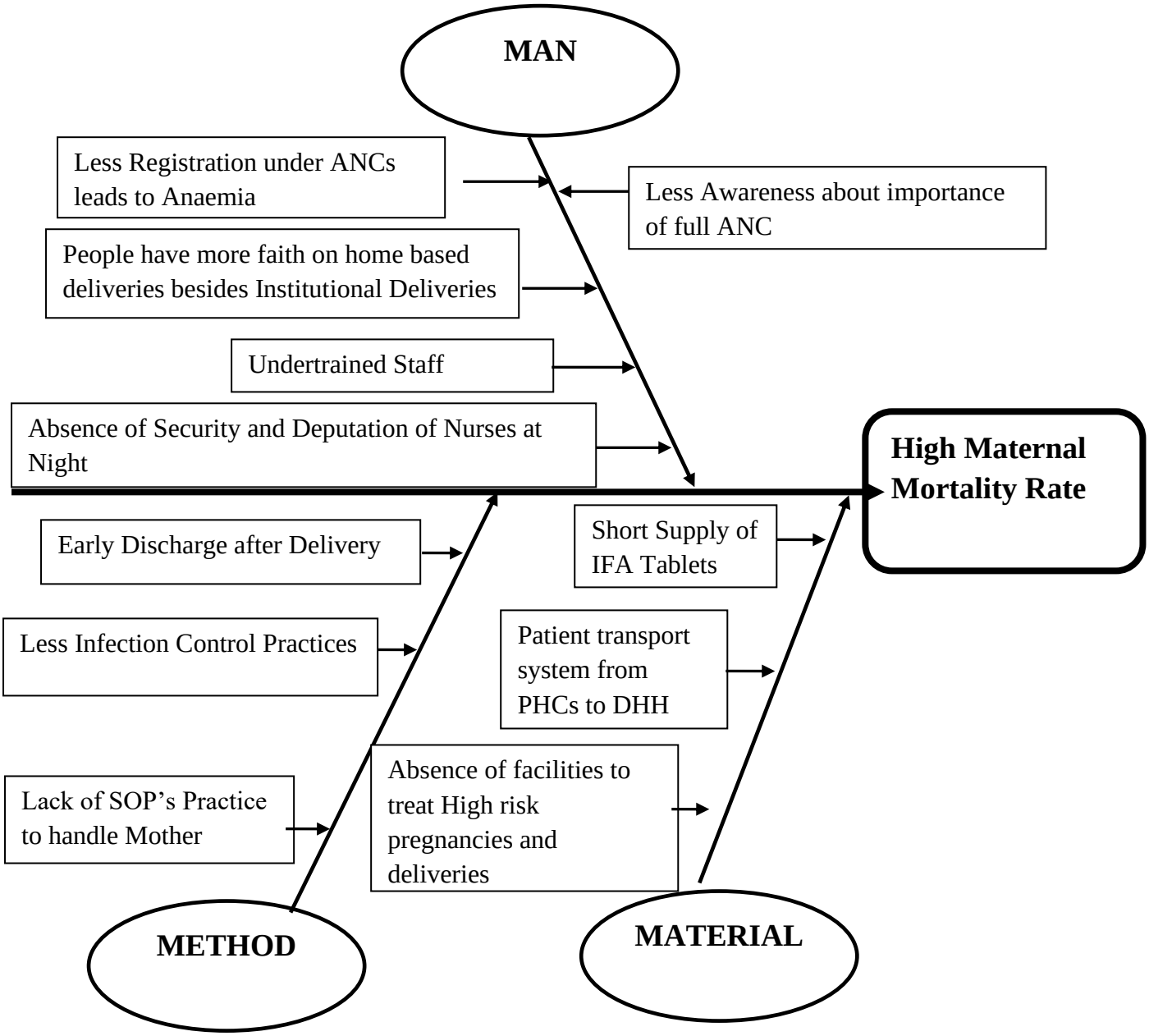

Figure 17: Fish Bone depicting causes of High MMR in DHH- Baripada & Balasore

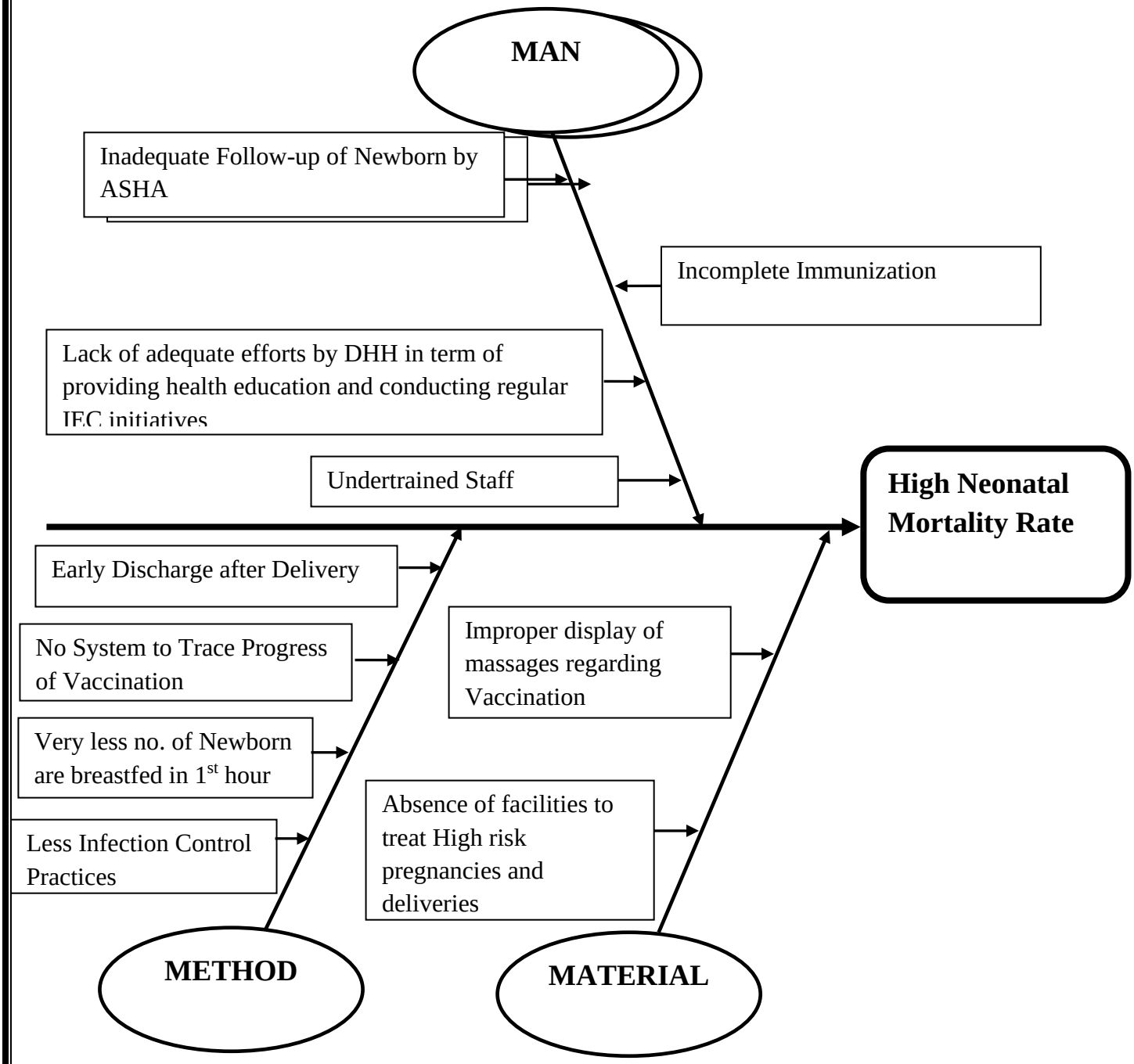

Figure 18: Fish Bone Depicting causes of High NNMR in DHH- Baripada & Balasore

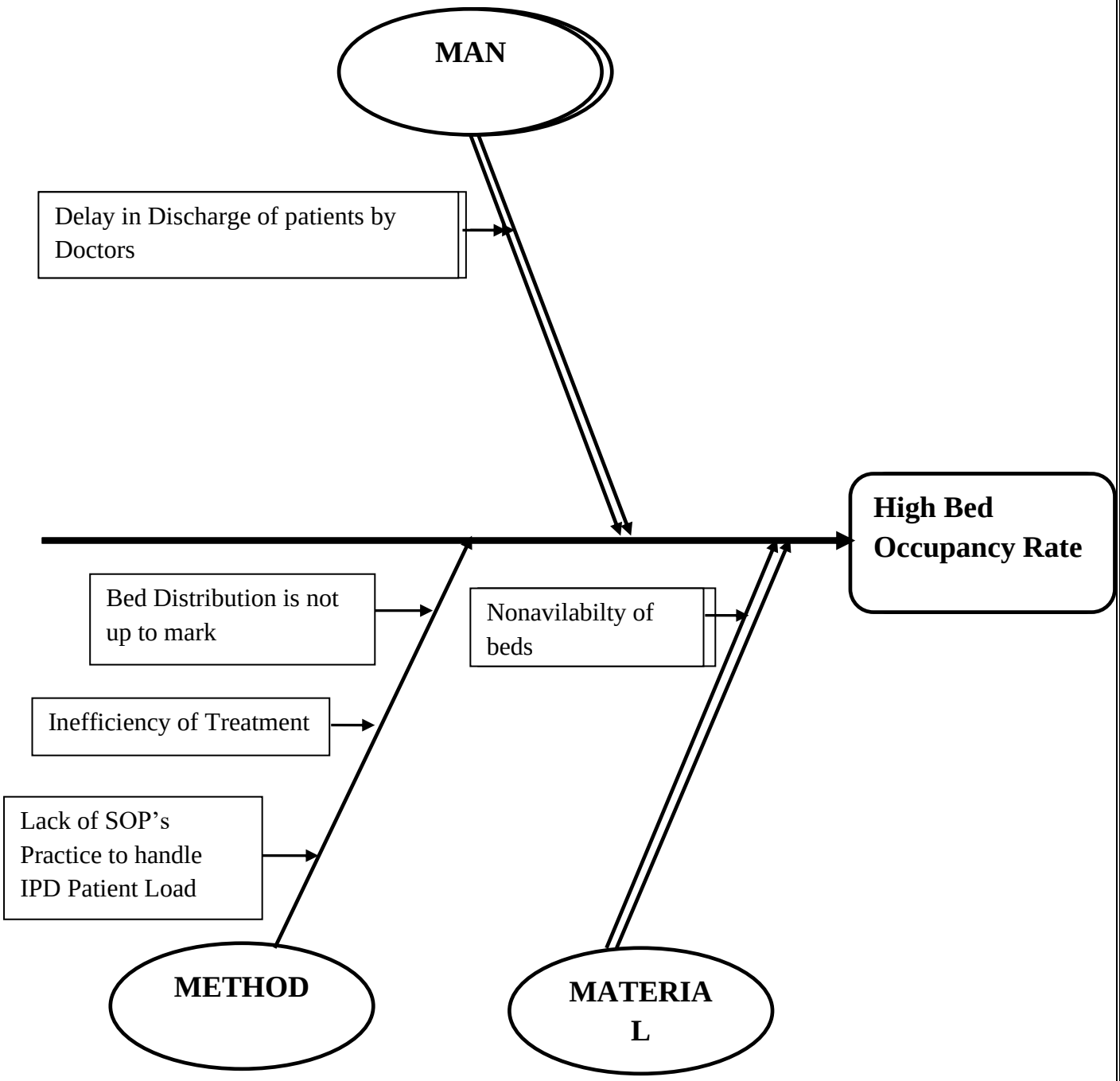

Figure 19: Fish Bone depicting causes of High BOR in DHH- Baripada & Balasore

2.13 Recommendations

2.13(a) Framing State Specific Structural Standards

All States already have national and international standards framed for ensuring quality healthcare delivery. But we also understand that every community has its own needs, which differ from other communities in the other states. Thus there is a need for framing structural standards specific to the state, customised as per the needs of the community or the local population.

The state specific standards thus framed would define the minimum:

- Infrastructure,
- Equipment,
- Drug,
- Manpower,
- Licenses and
- Some basic processes to be followed at each level of the public and private healthcare institutions so as to ensure delivery of quality healthcare services.

These standards will be framed on the basis of work load at each level of healthcare and on consideration of patient/community and staff safety.

2.13(b) Quality Assurance

In order to ensure the delivery of quality healthcare services, it is imperative to also incorporate the component of quality assurance in to the system of healthcare delivery. The healthcare infrastructure in the state needs to be accredited against the framed state specific structural standards and other national process standards like NABH. The implementation of a quality management system in a facility would improve the quality of service provided and also the management and administration of the services. Hence, all existing facilities should be reviewed and gaps should be identified. Based on which there could be systems development or process reengineering as the need be for the institution. The systems so developed or strengthened needs to be sustained and thus there should also be a component of training or capacity building. By adopting quality assurance program, the state can ensure uniformity at each level of

healthcare delivery, monitoring of performance through outcome indicators and thus improve the overall quality of the system. It would also help in winning the trust of the community and thus the community can be mobilized to utilize the services of such improved facilities.

The methodology of implementation of quality management program is as under:

- Preparing detailed gap analysis report with reference to structure, processes and outcomes
- Preparing a step-wise gap closure methodology
- Preparing a Time Bound Action Plan (Gantt Chart)
- Conducting a sensitization program hospital-wide for promoting awareness among the top level personnel
- Identifying key trainers
- Developing training manual and conducting a training need assessment
- Continuous training of identified trainers
- Framing organizational manual in terms of policies and SOPs
- Monitoring of performance with respect to manpower utilization, equipment utilization and implementation of policies and procedures quantitatively
- Providing training on monitoring of quality indicators, analyzing the root cause of unexpected outcomes and taking corrective and preventive action on the same in terms of clinical and managerial quality indicators.
- Enabling team work
- Ensuring continual implementation of program through constant motivation

2.13(c) Inter-sartorial Coordination

Healthcare is a holistic term and is not only restricted to clinical care. Thus while promising better healthcare to the community, we also need to focus on the other developmental sectors contributing to healthcare like

- Water,
- Hygiene & Sanitation,
- Food and Nutrition,
- Education,

- Housing, etc.

It is important to have all the developmental sectors coordinated in order to deliver quality care.

The coordinated efforts from all these developmental sectors would help in the improvement of health status of the state as:

- An educated community is aware to seek for health in the time of need
- Better water supply and hygiene & sanitation ensures a disease free community
- Proper food and nutrition builds up the immunity of an individual and thus the community at large, leading to a healthier society
- Properly spaced houses and secured land tenure is instrumental to a stress free living and thus helps maintain community health.
- Accurate notification of all slums in the community in official records would help the officials in planning health for all these under-served population.

2.13(d) Continuous Training & Capacity Building

Bringing a change is difficult but sustaining the same requires more efforts and reinforcements. In this hour of the need for quality, healthcare professionals need to trained and retrained in order to develop their knowledge level and skills of delivering healthcare. We understand that the failure of the regular training program is due to the incomprehensiveness of the delivery of the training program.
Training programme will include various activities to train the manpower of DHH- Baripada & Balasore.

- Conducting training need assessment in terms of content and context analysis
- Preparing a training manual
- Training modalities: on-the-job training, simulation, demonstration, buddy system, mentoring, video streaming, online e learning, class room training, hand holding, etc.
- Using innovative technologies like giving incentives to the trainees based on their performance post-training assessed through KAP analysis (Knowledge Attitude & Practices).

Hence it is necessary to train the healthcare workforce and orient them to the policies and procedures and in turn help them perform effectively.

2.13(e) Behavioural Change Communication

BCC is a research based consultative process of addressing knowledge, attitudes and practices through identifying, analyzing and segmenting audiences and participants in programs and by providing them with relevant information and motivation through well-defined strategies, using an appropriate mix of interpersonal, group and mass media channels, including participatory methods. BCC is about integrating new practices into long standing social, cultural and communication systems.

Behavior Change communication is directed towards inculcating the **health seeking behavior** among the population. BCC strategy will focus on changing behaviors at all levels of care ranging from clinic to family and community level and proposes BCC interventions that will increase utilization of services at the

Priority areas for BCC Focus are:

- Antenatal Care
- Institutional Deliveries
- Post Natal & New born Care
- Nutrition through the life cycle (infant, under three, adolescent, woman)
- Routine immunization
- Hygiene and safe water practices.
- Need for supportive supervision of ASHAs
- Capacity Building of BCC skills for service providers.

BCC strategy will centre on interpersonal communication and community level BCC activities. This in turn will be supported by mass media and community mobilization interventions.

2.13(f) Monitoring& Evaluation

Every system so established, needs a proper monitoring and evaluation so as to ensure proper functioning and delivery of expected outcomes and ensuring sustainability.

Thus, the model discussed here also needs to be monitored at defined intervals and at the appropriate level by designated personnel. The monitoring report so developed should be evaluated by experts and the findings should be discussed across all the levels of healthcare delivery system.

A proper monitoring and evaluation system helps in the assessment of the success in achieving the goals and objectives of any specific program or organization per se quantitatively as well as qualitatively.

Monitoring tools like MIS sheets shall be developed for the monitoring of each program component.

2.14 Conclusion:

I feel, if all the targeted interventions are carried out in a consorted manner then there would be considerable improvement, such as:

- Increased equity
- Trained and competent workforce
- Strengthened information system
- Strengthened infrastructure
- Health seeking community
- Improved health system
- Improved client satisfaction
- Improved health indicators
- Optimal utilisation of resources
-

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2.16 Annexure:

ME INDICATORS															
NAME OF THE Facility: DHH Balasore															
Name of Onsite Consultant(s) Rudra Narayan Das															
Year : 2012															
Month -OCTOBER	Jan 12	Feb 12	Mar 12	Apr 12	May 12	June 12	July 12	Aug 12	Sep 12	Oct 12	Nov 12	Dec 12	Total	Average	Any Remarks
HOSPITAL STATISTICS															
Total OPD Attendance	8760	8472	8972	12779	16578	13368	15132	14142	14328	16183	15399	14130	**2E+05**		
Old	253	227	235	447	333	452	542	478	452	1003	832	765	**6019**		
New	8507	8445	8737	12332	12245	12916	13872	13664	13876	15180	14567	13365	**1E+05**		
BPL OPD Attendance	79	76	81	78	89	88	65	98	76	89	93	97	**1009**		
Total IPD Admissions	3930	3971	4106	4534	4444	4429	4392	4678	4362	4802	4555	3678	**51881**		
BPL IPD admissions	31	25	98	335	123	345	245	712	807	991	678	732	**5122**		
Patient Bed Days	11233	11219	8802	9048	8214	7928	8412	8221	8011	9477	8765	11716	**1E+05**		
No. of Deaths	86	82	81	89	74	123	95	98	102	111	89	87	**1117**		
No. of patients attended in Emergency	3459	3421	3742	3456	3289	3318	3654	3431	3411	3722	3456	4565	**42924**		
No. of Sanctioned Beds by the State Government	205	205	205	205	205	205	205	205	205	205	205	205	**2460**		
No. of functional Beds on ground	328	328	332	332	332	332	332	332	332	332	332	332	**3976**		
No. of Functional Ambulances available	2	2	2	2	2	2	2	2	2	2	2	2	**24**		
No. of Trips made by ambulance for transferring patients	66	61	71	69	31	62	68	72	64	77	78	56	**775**		
OPERATION THEATRE															
No. of Minor Surgeries	24	21	31	33	35	37	54	39	42	45	52	38	**451**		
No. of BPL Patients underwent Minor Surgeries	6	5	7	8	10	11	12	27	13	11	22	14	**146**		
No. Major surgeries Done	318	297	288	365	365	312	342	231	302	370	345	355	**3890**		
No. of BPL Patients underwent Major Surgeries	103	222	135	156	178	183	169	187	153	71	145	156	**1858**		
REPRODUCTIVE & CHILD HEALTH															
No. of Normal Deliveries in Hospital	827	793	822	889	847	602	772	871	842	873	865	823	**9826**		
Number of Normal Deliveries-(BPL Category)	371	348	341	325	345	314	312	339	382	311	345	321	**4054**		
No. of C-Section Deliveries	169	152	209	211	214	197	232	212	332	232	218	256	**2634**		
No. of C-Section Deliveries-(BPL)Category	109	92	85	88	65	78	98	28	32	18	45	67	**805**		
No. of Maternal Deaths	3	2	3	0	6	3	0	2	1	0	3	4	**27**		
No. of Neonatal Deaths including still births.	41	35	36	39	27	41	23	27	31	26	34	32	**392**		
No. of Neonatal Death	25	23	19	17	14	12	14	17	3	2	6	8	**160**		
No. of Still Births	16	12	14	22	13	29	16	15	29	26	22	23	**237**		
No. of IUD insertions performed.	8	9	7	8	7	7	17	19	13	27	13	18	**153**		
No of condoms distributed	5432	2345	4567	5643	6743	5520	5442	6321	5660	4689	4567	5643	**62572**		
No. of Vasectomy performed	1	3	4	3	3	0	0	3	2	0	5	6	**32**		
No. of children immunized	12	11	14	21	11	23	14	17	11	23	21	12	**190**		
No. of Tubectomy performed	23	34	23	34	32	56	62	69	57	27	54	56	**527**		
No. of MTP Conducted	1	1	3	7	2	3	6	4	3	2	3	2	**37**		

LABORATORY SERVICES													
No. of Lab tests done	2398	2367	1727	1929	2828	1610	1872	2131	2019	3120	3210	3456	**28667**
No. of Lab test done - (BPL Category)	123	119	92	461	123	33	87	213	326	612	345	456	**2990**
RADIOLOGY													
No. X-Ray Taken	467	451	392	379	501	363	324	412	398	521	456	654	**5318**
No. of X-Ray taken - (BPL Category)	22	25	28	13	123	38	87	98	56	65	76	67	**698**
No. of ultrasound Done	86	79	89	104	93	104	98	123	94	132	145	167	**1314**
No. of ultrasound Done- (BPL Category)	21	24	33	34	44	42	47	39	33	56	45	76	**494**
DEPARTMENT WISE DATA (OPD)													
Male OPD	4398	4573	3456	4532	5432	2343	3433	4322	3332	4422	5322	3223	**48788**
Female OPD	2300	3465	4534	3456	4534	3456	2345	3654	3643	3452	2453	2364	**39656**
AYUSH OPD													
Dental													
Ophthalmology	987	884	412	381	987	322	388	411	392	355	456	356	**6331**
Others (if any)MEDICINE	613	592	451	550	725	227	337	398	411	1122	1142	345	**6913**
Others SURGERY	358	369	311	384	516	428	492	432	407	712	654	453	**5516**
PAEDIATRICS	432	427	388	341	539	227	411	478	398	752	345	543	**5281**
ORTHPADICS	219	202	244	245	250	256	334	523	432	442	654	564	**4365**
O&G	453	543	243	252	362	123	212	371	362	403	456	123	**3903**
SKIN AND VD	1163	109	401	380	1116	962	872	927	892	911	234	342	**8309**
ENT	237	229	265	345	471	411	388	312	421	527	234	222	**4062**
TB	692	689	688	733	733	692	642	651	627	707	343	233	**7430**
ICTC	504	49	349	591	334	492	750	652	572	527	422	442	**5684**
COPD	3559	3421	3165	3456	3289	3318	3381	3431	3411	3722	3321	4421	**41895**
Total OPD Attendance	15915	15552	14907	15646	19288	13257	13985	16562	15300	18054	16036	13631	**2E+05**
DEPARTMENT WISE DATA (IPD)													
Male Medicine ward	Beds →												
Admissions	531	517	522	544	538	464	582	611	578	612	654	546	**6699**
BPL	153	123	123	232	85	98	112	234	201	311	123	231	2026
Discharge	476	453	442	476	490	412	418	458	428	527	598	465	**5643**
Death	27	26	18	34	21	18	29	18	21	32	23	32	**299**
Reffered	44	38	22	44	22	15	22	27	29	12	45	32	**352**
Absconding	0	1	3	0	0	0	0	6	0	0	5	3	**18**
LAMA	12	18	9	12	16	6	12	34	52	45	43	34	**293**
Female Medicine Ward	Beds →												
Admissions	496	477	481	534	505	512	492	578	512	547			**5134**
BPL	3	4	6	6		9	16	65	171	231			**511**
Discharge	399	376	312	299	452	488	411	368	482	501			**4088**
Death	21	19	16	23	25	21	19	21	20	34			**219**
Reffered	21	20	17	11	24	9	14	32	31	19			**198**
Absconding				67		0	0	5	0	0			
LAMA			6	4		6	11	34	32	32			**125**

SURGICAL WARD	Beds →												
Admissions	385	363	259	492	441	441	452	351	398	766			**4348**
BPL	328	6	12	18	NA	16	64	45	209	347			**1045**
Discharge	8	298	161	177	545	512	492	211	191	371			**2966**
Death	45	9	3	6	5	23	18	11	13	9			**142**
Reffered		39	22		54	24	31	25	11	23			**229**
Absconding					0	0	0	23	0	0			**23**
LAMA			11	1	20	17	10	17	16	26			**118**
PAEDIATRIC WARD													
Admissions	503	489	492	600	632	592	512	596	628	721			**5765**
BPL	3	3	9	6		13	NA	77	95	234			**440**
Discharge	480	469	412	477	606	517	409	397	421	613			**4801**
Death	6	5	3	5	4	19	6	18	9	17			**92**
Reffered	6	3	26	51	25	16	17	11	9	17			**181**
Absconding				NA		0	0	0	0	0			
LAMA			10	25	3	14	3	21	87	23			**186**
GYANEACOLOGY WARD													
Admissions	1557	1538	1820	2008	1966	1992	2002	1972	1909	1803			**18567**
BPL	2	2	6	86		314	318	356	378	412			**1874**
Discharge	1536	1522	1796	682	1729	1812	1991	871	1056	873			**13868**
Death	3	4	2	0	5	6	9	6	12	8			**55**
Reffered	11	9	5	NA	7	8	16	8	21	27			**112**
Absconding				NA	0	0	0	0	0	0			**0**
LAMA			3	5	0	12	27	14	23	32			**116**
EYE WARD													
Admissions	99	81	59	81	37	34	41	51	48	43			**574**
BPL	0	0		NA		NA	NA	NA	NA	NA			**0**
Discharge	91	71	52	72	32	31	37	31	47	43			**507**
Death	0	0	0	0	0	0	0	0	0	0			**0**
Reffered	3	4	0	0	0	0	0	0	0	0			**7**
Absconding				0	0	0	0	0	0	0			**0**
LAMA			0	0	0	0	0	0	0	0			**0**
SNCU													
Admissions	204	197	168	187	176	214	231	227	187	213			**2004**
BPL	N0	0	0	2		0	0	0	0	0			**2**
Discharge	181	174	162	109	117	126	187	172	113	109			**1450**
Death	19	18	9	17	11	16	14	19	24	8			**155**
Reffered	19	24	17	7	52	43	27	12	27	14			**242**
Absconding					0	0	0	0	9	0			**9**

INFECTIOUS WAARD													
Admissions	131	124	166	153	142	168	162	192	97	89			**1424**
BPL	2	1	9	NA		NA	NA	NA	11	7			**30**
Discharge	125	13	19	86	133	142	152	134	88	59			**951**
Death	2	1	1	4	3	18	2	3	3	1			**38**
Reffered	0	0		NA	2	3	4	0	0	0			**9**
Absconding				NA	0	0	11	9	16	3			**39**
LAMA			19	12	2	0	0	0	12	0			**45**
TB WARD													
Admissions	24	18	7	5	7	8	12	17	5	8			**111**
BPL	0	0	0	NA	NA	NA	NA	NA	NA	5			**5**
Discharge	11	10	9	0	4	6	11	16	5	0			**72**
Death	0	0	0	0	1	0	0	0	0	0			**1**
Reffered	0	0	0	0		0	0	0	0	0			**0**
Absconding			0	0	0	0	0	0	0	0			**0**
LAMA			0	2	1	0	0	0	0	0			**3**
Total	Beds →												
Admissions	3330	3801	4106	4528	4444	429	4486	4678	4362	4802			38966
BPL	31	25	65	113		363	425	674	1065	1542			4303
Discharge	3749	3603	3412	2424	4243	4046	4113	2338	2831	3102	3133.00	2998	39992
Death	86	82	87	89	75	123	95	98	102	111	87.00	98	1133
Reffered	157	142	162	81	186	118	131	115	118	112			1322
Absconding						0	11	43	25	0			79
LAMA	111	129	118	117	28	63	63	120	240	158	125.00	138	

PERFORMANCE INDICATORS													
TITLE	Jan 12	Feb 12	Mar 12	Apr 12	May 12	June 12	July 12	Aug 12	Sept 12	Oct 12	Nov 12	Dec 12	
(A) HOSPITAL STATISTICS													
Bed occupancy Rate (BOR) Total Patient Bed Days x 100 ÷ (Functional Beds in Hospital × Calendar Days in month) Bed Patient days- Sum of daily patient census for whole month	110.47	117.95	85.52	90.84	79.81	79.60	81.73	79.88	80.43	92.08	85.16	113.84	1097.32
Bed Turnover Rate (BTR) Inpatient discharge including deaths in the month ÷ Functional Bed on Ground	11.69	11.23	9.26	7.66	13.00	12.55	12.67	7.33	8.83	9.67			103.89
Average Length of Stay (ALOS) (In Days)Total Patient Bed Days in the month (excluding New Born) ÷ Discharges in the month (including Death, LAMA, absconding)	2.85	2.94	2.43	3.44	1.89	1.87	1.96	3.16	2.51	2.81	2.62	3.62	32.11
Lama Rate (Per hundred Admissions)Total No. of LAMA cases × 100 ÷ Total No. of Admissions	0.43	0.28	1.22	1.28	0.63	1.42	1.40	2.56	5.50	3.29	3.29	3.29	24.59
(B) PATIENT CARE													
Nurse to Bed ratio	5.85	5.85	5.85	5.85	5.85	5.85	5.85	5.85	5.85	5.85			58.50
(D) MATERNAL & CHILD HEALTH													
LSCS Rate No. of CS delivery x 100 ÷ No. of Total delivery	16.97	16.08	20.27	19.18	20.17	24.66	23.11	19.58	28.28	21.00	20.13	23.73	253.14
Percentage of mothers leaving hospital in less than 48 hrs. no. of mothers leaving hospital less than 48 hrs of delivery x 100 ÷ Total No. of delivery	61.24	74.65	64.00	76.37	79.83	95.74	71.11	80.42	71.72	72%	72%	72%	677.23
Percentage of mothers getting JSY benefits within 48 hours of delivery	90.24	90.98	93.11	71.10	72.98	95.74	79.27	80.51	71.72	72.00%	72.00%		747.09